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Settlements and dwellings in the Early and Middle Neolithic of Central and Western Macedonia

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I hereby declare that the work submitted is mine and that where I have made use of another's work, I have attributed the source(s) according to the Regulations set in the Student's Handbook.

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Preface

This study is the completion of the postgraduate course of MA in the Classical Archaeology and the Ancient History of Macedonia at the International University of Thessaloniki. Here I would like to express my gratitude to some people of whom the contribution was vital for the completion of this study. Firstly, I would like to thank Prof. Duska Urem-Kotsou for accepting to supervise my thesis and for aiding me during all its stages. She was always available to guide me and clarify any questions or concerns about the work. Secondly, I would also like to thank Prof. Nikos Efstratiou of the Aristotle University of Thessaloniki for the discussion and the information he provided me during my study. Lastly, I would like to express my gratitude to Prof. Nikos Akamatis who helped me whenever clarifications were needed.

Contents

Introduction

During the last decades, large-scale excavations and extensive surveys in the regions of Central and Western Macedonia have brought to light a large number of settlements and dwellings, dating to the Early (EN) and Middle Neolithic (MN) period. The new evidence testifies to the existence of agriculturalists and pastoralists in Macedonia already by the middle of the 7th millennium BC and reveals close relations between the regions of Macedonia, Thessaly and Balkans throughout the Neolithic period in terms of material remains, topography, architecture, pottery, tools, figurines and other categories of evidence. However, Macedonia seems to display certain singularities in contrast to the adjacent regions in regard, among others, the layout of the Neolithic settlements and the variability in the form of the dwellings.

The aim of the current thesis is to record and present all the known settlements and dwellings of Central and Western Macedonia dated to the EN and MN periods, with special focus given on their spatial organization and architecture. By providing a complete documentation of both the EN and MN settlements and dwellings for each of the two geographical areas under study - including but not limited to the well-known bibliographically sites such as Paliambela Kolindros (Pieria), Nea Nikomedeia (Imathia), Stavroupoli (Thessaloniki), Mavropigi-Fylotsairi (Ptolemaida), Sosandra (Aridaia) and Servia (Kozani) -, the aim will be to explore commonalities and differences in the form and architecture of the settlements and dwellings in order to gain a broader understanding of the variability in the habitation patterns and the organization of the EN and MN farming communities in different regions of Macedonia. The methodology followed will include an exhaustive use of the available bibliography, Greek and foreign. At this point, it should be noted that the present dissertation will include only the excavated EN and MN sites of Central and Western Macedonia, and will not refer to other contemporaneous sites, that either lacked architectural evidence or were identified by surface evidence during surveys. The main questions which will be hopefully answered or commented upon are:

- What are the types of settlements and dwellings attested in the EN and MN of Central and Western Macedonia, a period covering more than one thousand years (6.600 BC - 5.500 BC)?
- Is there a continuity or discontinuity attested in these two neighboring regions in the use of these settlements and house-types? How long did they last?
- Is there a uniformity or variability in the type of settlements and dwellings? To what extent and in which cases?
- What do these patterns in settlement layout and architecture mean for communal organization and life in the EN and MN period in Macedonia?

The thesis has been divided as follows:

The first part includes chapter (A), which elaborates on the basic aspects of the EN and MN of Central and Western Macedonia. It begins with the related chronological issues and the geography and environment of the region, continues with an introduction to the Neolithic period of Macedonia, the types of settlements, the settlement architecture, and ends with the economy of the settlements.

Chapter (B) comprises the second part of the thesis, which records and presents region by region all the known EN and MN settlements and dwellings of Central and Western Macedonia, with special focus given on their spatial organization and architecture. Different aspects of spatial characteristics such as the location and type of settlements, architectural layout, building materials and techniques, size of dwellings, density, longevity and other features are addressed.

The third one, chapter (C), discusses issues of uniformity or variability in the types of settlements and dwellings in these two adjacent regions, issues of continuity or discontinuity in the use of these types of settlements and house-types, and finally investigates the meaning of these patterns in settlement layout and architecture for the Neolithic life and communal organization in the Early and Middle Neolithic period in Macedonia.

After the abbreviations (D) and bibliography (E) follows the last part of the thesis that includes the figures (F) and tables (G).

A. Chapter 1: Defining the region under study

A1. The prehistoric research in Macedonia

The beginnings of prehistoric research in the Balkans and in Northern Greece - including Macedonia in particular - can be traced back to the end of the 19th century, when the imminent dissolution of the Ottoman Empire and the revival of European interest for the history and natural wealth of these regions had prompted researchers and explorers from different countries to conduct several historical, geophysical and sociological studies in these areas (Romiopoulou 2014: 31). The leading concerns of European prehistoric research, as being directed by the geopolitical events of that period, revolved around the search and study of issues of origins of identity, nation and race (Andreou et al. 1996: 561).

Among other projects, German Träger collected pottery sherds during his surveys in the area of Axios River and published his work at the magazine Zeitschrift fur Ethnologie in 1902 and 1905. In 1895, Korte went at the site of Toumba Thessaloniki and commented upon its pottery (Romiopoulou 2014: 31). Between 1910-1912, English archaeologists A. Wace and M. Thompson visited some areas of Macedonia and Chalcidice during their expedition in Thessaly and finally published a study in the Geographical Journal regarding the "Distribution of Early Civilization in Northern Greece" in 1911 (Romiopoulou 2014: 32). At the same year, the Macedonian Exploration Fund was announced in England and a committee assembled by professors of Cambridge and Oxford University started to gather financial resources to sustain the research in the Balkans (Romiopoulou 2014: 32).

In the following Balkan Wars (1912-1913) and First World War (1914-1918) the construction works for new military camps, trenches and pillboxes in Northern Greece resulted in the revelation of several prehistoric settlements. The "excavations" of these sites were carried out by military scientists, archaeologists, philologists or even doctors, who mostly served in the Entente forces. The collected archaeological evidence was being transferred and stored to Thessaloniki, but a part of it was also sold between the supervisors of the "excavations" and the soldiers. In order to cope with illegal trade and protect the antiquities, the newly settled Greek Archaeological Service at Thessaloniki in 1913 asked

for the intervention of the Greek and foreign authorities (Romiopoulou 2014: 32). In 1916, with the French authorities appearing reluctant to comply with the instructions, general Sarrail of the French army had to issue direct order for the protection of the findings, which were being transferred to Rotonda. The latter was also used for storing the findings of the excavation of Toumba Thessaloniki conducted by S. Pelekidis in 1917 (Romiopoulou 2014: 32). On the other hand, English authorities, who were more compliant to the Greek orders than the French, recruited more educated soldiers at the "excavation" units. They also appointed E. Garner, professor at the University of London and former director of the British School of Archaeology, as the chief of the "excavations". In the meantime, the new director of the British School of Archaeology, A. Wace, who was mostly interested in the excavation of Olynthus, visited Thessaloniki (1914) and Chalcidice (1915) during the war. English and French topographers collaborated in creating new enhanced maps, while aerial photo-shooting of the sites was used for the first time. In 1918 the English transferred the findings from the White Tower to the Papafeion Orphanage, which was converted to a Museum hosting considerable artifacts from the Prehistoric to the Archaic times (Romiopoulou 2014: 33).

After the end of the First World War, English archaeologists S. Casson and W. Heurtley continued the digging and surveying in Central/Western Macedonia and Chalcidice. Particularly, from 1923 to 1933, Cason carried on with the excavations of Vardinio, Vardarofatsa, Tsaousitsa and Kilindir, while Heurtley resumed excavating Agios Mamas, Molyvopyrgos, Kritsana at Chalcidice, Perivolaki (Saratse) at Langadas, Bourbousti, Servia (Neraida) at Aliakmon River and Armenochori in Florina. The two archaeologists collaborated well with the professor Ktena of the University of Athens to whom they often sent material for analysis. At that time, the evidence was kept in the National Museum of Athens. In 1926, S. Casson published the "Macedonia, Thrace and Illyria", an admittedly important work of this period, while later, in 1939, W. Heurtley wrote his book "Prehistoric Macedonia", which gives an analytical report of the excavations in Central and Western Macedonia and discusses problems of the Macedonian Prehistory (Romiopoulou 2014: 34).

At the beginning of the decade 1929-1939, G. Mylonas initiated the excavations at the prehistoric site of Olynthus, while, in 1938, he collaborated with the Ephor of Antiquities

of Eastern Macedonia G. Bakalakis to excavate a prehistoric settlement at Galipsos-Akropotamos in Kavala. In the meantime, Keramopoulos in his studies on the prehistory of Western Macedonia discovered the prehistoric settlement of Dispilio in Kastoria. During the Second World War, the excavation of Toumba Thessaloniki was continued by the German naval officer Stoessel, while the Early Iron Age graves of Vergina were excavated by Ehner, a German military. Lastly, Mikyverna, the harbor of Olynthus, was excavated by Bulgarian archaeologists (Romiopoulou 2014: 35).

The decade 1950-1960 marked a new era of research in Macedonia. After the prompting of the Ephor of Antiquities F. Petsas, an English team under the direction of D. Clark and R. Rodden started an excavation - a landmark for all the prehistoric research that followed in Macedonia - at Nea Nikomedeia. The new multidisciplinary project at Nea Nikomedeia viewed Macedonia in the context of the "spread" of the Neolithic and not in terms of diffusion or ethnogenesis, introducing therefore new questions and approaches in the prehistoric research of the region (Andreou et al. 1996: 561). In the excavations of Nea Nikomedeia a number of then young important archaeologists were present such as C. Renfrew, J. Nandris and others. Other foreign and Greek archaeologists also worked in the rescue excavations of Servia Kozanis under K. Romiopoulou and C. Ridley that lasted from 1971 to 1973 (Romiopoulou 2014: 35).

In 1961, 40 years later, French archaeologist J. Deshayes in collaboration with D. Theocharis and K. Romiopoulou continued the excavation at Dikili Tash. The French archaeologist also invited the Serbian professor M. Garasanin along with a research team to assist him to organize the excavation. Finally, the excavation passed to the jurisdiction of the French School with the participation of the Ephorate of Antiquities of Eastern Macedonia. A little later in time C. Renfrew and M. Gimbutas started their joint excavation at Sitargroi-Fotolivos in Eastern Macedonia (Romiopoulou 2014: 36).

From 1980 onwards, excavations passed under the complete control of the Greek Archaeological Service (Romiopoulou 2014: 36). Rescue excavations conducted by the Ephorates of Antiquities of Northern Greece and systematic excavations by the Aristotle University of Thessaloniki have added many more prehistoric sites in the map of Macedonia. Particular mention to the excavation history of each one of the EN and MN sites of Central and Western Macedonia will be provided in Chapter 2, where the

archaeological evidence of the sites will be presented.

A2. The chronological system

In order to avoid any confusion, this study has adopted a broad chronological scheme and terminology based on the available radiometric evidence (**Tab. 1, 2**) (Krauß 2011: 3; Andreou et al. 1996: 538):

a) Early Neolithic (EN) 6700/ 6500 - 5800/ 5600 BC,

b) Middle Neolithic (MN) 5800/ 5600 - 5400/ 5300 BC,

c) Late Neolithic (LN) 5400/ 5300 - 4700/ 4500 BC,

d) Final Neolithic (FN) 4700/ 4500 - 3300/ 3100 BC.

A3. The geography and environment

The geographical unit of Macedonia is defined by the basin of the Axios river (Kotsakis 2007: 2). The Axios basin, i.e. Macedonia, is marked by a series of tectonic depressions (basins and rift valleys), which have been formed due to the elevation and subsidence of the earth's surface. In the central part of the basin, that is Central Macedonia, these formations are separated from each other by hills and low mountains, while in the western part, i.e. in Western Macedonia, big mountain ranges are more prevalent (Kotsos 2017: 23). Most of these lands are also crossed by rivers and streams, which form natural routes of communication between them. Sites with EN and MN deposits in Central Macedonia are found in the Langadas basin and the Thessaloniki plain, while in Western Macedonia they seem to concentrate in the Middle Aliakmon valley, the Knidi valley, and the basins of Ptolemais-Vegoritis (Kitrini Limni area), Florina and Kastoria (**Fig. 1**) (Urem-Kotsou and Kotsos 2017: 275-276; Toufexis 1994: 17; Karamitrou-Mentessidi 2005: 544; Kokkinidou and Trantalidou 1991: 93; Ridley-Wardle 1979: 188; Chondroyianni-Metoki 1992: 35-36; 2002: 557-563; 2011: 81).

In Central Macedonia, the Langadas basin, which is located to the northeast of Thessaloniki, forms an elongated area of 850 km^2, defined to the north by Mt Vertiskos and

the south by Mt Holomontas, while two lakes, Koroneia and Volvi, are situated in its central part. The region, marked by several streams, lakes and fertile fields already from the Neolithic times, must have been an attraction to the early settlers who settled in the area (Kotsos and Urem-Kotsou 2016: 117). The Thessaloniki plain, although connected with the Langadas basin, is a rather distinct geographical unit. It extends between the Mts Vermion and Pieria to the south, Vorras and Paiko to the west/northwest, the area of Iron Gates of Axios river to the north and Vertiskos to the east. The plain is crossed by the rivers Axios, Aliakmon and Echedoros (**Fig. 1**) (Kotsos 2017: 24-25). Recent geological studies have shown that, during the Holocene, a large part of the plain, west of the Axios river, was probably covered by the sea of the Thermaic Gulf, which must have occasionally extended till the region of Skydra (Urem-Kotsou and Kotsos 2017: 275).

In Western Macedonia, the Middle Aliakmon valley is defined by Mts Vourinos to the west, Skopos to the northeast, Pieria and Kamvounia to the east and south, and the plateau of the modern city of Kozani to the northwest. The region is crossed by numerous streams, which begin from the surrounding mountains and end up flowing into the Aliakmon river (Chondroyianni-Metoki 2012). The Knidi valley lies to the west of the Middle Aliakmon valley, with which it communicates through Mt Vourinos (Toufexis 1994: 17). The Ptolemais-Vegoritis basin (Kitrini Limni area) encompasses a fertile plain formed between Mts Vernon, Mouriki and Askos to the west, Vermion to the east, Vorras to the north, and a series of hills to the south. The basin is marked by the presence of four lakes (Vegoritis, Petres, Cheimaditis and Zazari), and former the lake Sarigol (or Kitrini Limni) - from which it took its name -, before it was drained in the mid-20th century (Kokkinidou and Trantalidou 1991: 97-98; Karamitrou-Mentessidi 2014: 233). The Florina basin is enclosed by Mts Varnous and Vernon to the west, Vorras to the east, and by the rocky eminences of Vevi to the south. It is connected with the Vegoritis basin to the east, the Pelagonian plain to the north and the Kastoria basin to the west. The latter is encompassed by Mts Voion to the west-southwest and Mouriki to the east-southeast (**Fig. 1**) (Kokkinidou and Trantalidou 1991: 96-97).

Holocene vegetation and climatic conditions in Central and Western Macedonia has been the subject of many pollen studies which have been conducted in various archaeological sites (Ntinou 2014: 409). Despite local variations observed in both

vegetation and climate of Macedonia, the analysis of the palaeobotanic record has shown that, during the Early Holocene (11.500-7.500 BP), i.e. the EN, MN and LN period, the amelioration of climatic conditions (rise of temperature, increase of rainfall) contributed in the expansion of oak forests and other broad-leaved deciduous species to intermediate elevations and lowlands, while mountainous conifer forests, especially pines, developed at higher altitudes. Even more, the presence of thermophilic vegetation also attested in the pollen record suggests that Macedonia at that time enjoyed a mild and humid climate (Ntinou 2014: 409-410). The general picture, between 9500 and 7500 BP, is that of a climate with temperate, humid winters and warm, dry summers. Before 9000 BP, the sea level, which was about 25-40 m lower than the present day, gradually rose to cover the Pleistocene plain of Macedonia, while together with the gradual augmentation of rainfall, seem to have caused the first flood episodes in northern Greece (Krahtopoulou 2018: 21). However, several brief and abrupt recurrent (8700, 7600, 5600 and 4300 BP) episodes of retreat of woodlands and expansion of herbaceous vegetation have also been observed (Kouli 2014: 404). A climatic episode that occurred in northern Greece during the EN period, between 8400 and 8100 BP, caused a fall of temperature more than 4 C in winter and a significant reduction of the winter rainfalls. Other short cool and dry climatic episodes which occurred around 7300 and 6400 BP seemed to have affected the climate of the area, which generally, from 7800 to 5000 BP, gradually became cooler and drier with less rainfalls, leaving its imprint on the regional flora (Krahtopoulou 2018: 21-22). According to the researchers, the change in flora during the Neolithic period is thought to be more the result of climatic fluctuations rather than of local human activity. Even though the latter has surely left its mark on the local vegetation (cultivation, grazing, lumbering), it does not seem to have significantly changed the regional flora until about 4000 BP (Kouli 2014: 404). Regardless, however, of the occurring climatic fluctuations, forests seem to have been preserved in all the phases of the Neolithic up to the Early Bronze times (Krahtopoulou 2018: 22).

From the LN onwards, more drastic changes are attested in both the environment and vegetation of Macedonia (shifting of coastlines, formation of new swamps/lagoons, appearance and expansion of new vegetation species) (Krahtopoulou 2018: 22-23). A more detailed account of these changes is beyond the scope of this chapter, which focuses on the

geography and environment of Macedonia in the EN and MN period.

A4. The Neolithic period in Macedonia - An introduction

In Greece and in Macedonia particular, the introduction of the Neolithic way of life, i.e., the appearance of permanent settlements, farming and pastoralism, is little known, mainly due to the lack of any Mesolithic evidence, that is from about 9700 to 7000 BC (Kotsakis 2005: 10). The beginning of the Neolithic in the area, as in the rest of Greece, is most often seen as the result of "a diffusion continuum" (process or processes), which involved the arrival of populations and ideas coming from the Near East after approximately 8000 BC (Efstratiou 2007: 124; Perlès 2001: 45). Even so, hypotheses differ as to the exact processes involved in the emergence of the farming period in Greece (involvement or not of local Mesolithic groups, dynamism of the first farmers etc.) (Kotsakis 2004: 56, Efstratiou 2007: 124). Regardless, however, of the particular position of Macedonia in the diffusion of the Neolithic way of life in northern Greece and the Balkans, it is clear from the available archaeological data gathered from numerous excavations and surveys, that the region under study has a great deal to provide for the archaeological understanding of the beginning of the Neolithic period in the region.

The start of the Neolithic way of life in Macedonia is placed now much earlier than was previously believed (Maniatis 2014: 207, Kotsakis 2014: 134). New evidence from the sites of Paliambela Kolindros (Central Macedonia) and Mavropigi-Fylotsairi (Western Macedonia) has testified to the presence of farming in the region already by the middle of the 7th millennium BC, between 6600 and 6400 BC, verifying that the early settlements here were more or less contemporaneous with those of Thessaly and Western Anatolia (Asia Minor) (Kotsakis 2014: 135-136). New archaeological data coming from excavated sites in Central and Western Macedonia - such as Nea Nikomedeia, Mikri Volvi, Servia, Vasilika, Sosandra Aridaia, Revenia Korinos and other settlements - has provided researchers with new evidence regarding the start of the Neolithic in the region and the surrounding areas.

Until the 90s, Neolithic research has persistently viewed the mound settlements as the predominant type of prehistoric habitation in Northern Greece (Kotsakis 1999: 66), but

from 1980 onwards new systematic excavations and extensive surveys conducted in several regions revealed that flat-extended settlements have been used simultaneously in both Thessaly and Macedonia during all phases of the Neolithic period (Urem-Kotsou and Fotiadis 2018: 33). And although rectangular buildings appear to dominate in the MN over the pits-houses of the EN in Thessaly (Kotsakis 2014: 137), new archaeological data collected from the settlements of Central and Western Macedonia has shown that these two types of dwellings, as well as other forms of structures, co-existed in the settlements of northern Greece (e.g. Paliambela Kolindros, Revenia Korinos, Makrygialos) all through the Neolithic period (Urem-Kotsou and Fotiadis 2018: 33).

Other categories of evidence recovered from newly excavated sites in Macedonia have shed light on other important aspects of the region's Neolithic period. Based on the available data from Macedonia, and in accordance with the rest of Greece, the economy of the Neolithic populations from its very beginning was primarily dependent on agriculture and animal husbandry, while hunting and fishing must have played a supplementary role in their diet. Pots of small and average size, already from the beginning of the EN, were used for the preparation and consumption of the food, while larger pots (pithoi) used for storage appear more frequently from the MN onwards. As for the treatment of the dead, all types of burials - inhumations and cremations - are encountered within the limits of the settlement, during all stages of the Neolithic period (Urem-Kotsou and Fotiadis 2018: 34). Different burial practices are combined together in the same settlement while in some cases the deceased are buried in the surrounding ditches (Koroneia Langadas) (Kotsos 2018: 55). Among different forms of crafts, anthropomorphic vessels and figurines are the most well represented artifacts found in the settlements. Although local variations are observed in the archaeological record, they are usually made of clay, stone or sometimes marble, displaying often different facial and physical features (Urem-Kotsou and Fotiadis 2018: 34).

These general features of Macedonia's Neolithic, reflected on the material remains, settlement typology, architecture, economy, pottery, burials, artifacts and other categories of evidence (not mentioned here), point to the existence of cultural relations and contacts or differences between sites in the adjacent regions, neighboring or distant as Thessaly and the Balkans. Irrespective, however, of these commonalities and differences in the material

culture seen in the different regions, it is certain that by the middle of the 7th millennium BC agricultural and stock-breeding societies appear fully developed in the archaeological record of Macedonia. These prehistoric communities, during the different stages of the Neolithic in the area, that is from about 6700/6500 to 3300/3100 BC, developed a distinct way of life, the characteristics of which are yet not fully understood.

A5. Settlement geography and location

Settlements dated to the EN and MN period in Central and Western Macedonia have been uncovered in several distinct regions, each one separated from one another by their own geographical features. However, geomorphological processes and human activities through time have changed significantly the landscape and environment of Macedonia having an effect on both the palaeogeography and ancient topography of many prehistoric sites. As a result, many of these sites have been destroyed or buried or appear quite different today from the time of their occupation (Krahtopoulou 2018: 23). Nonetheless, the data available from the archaeological investigation so far suggests that the Neolithic farmers of Macedonia had expressed certain preferences or priorities in the selection of their settlement's location (Urem-Kotsou and Fotiadis 2018: 32).

In Central Macedonia, in the Langadas basin and the plain between the Koroneia and Volvi lakes in particular, the EN and MN settlements were founded either on the slopes of hills (Lete I, Mikri Volvi and Evagelismos) or on low elevations (Lete III and Koroneia) (Kotsos and Urem-Kotsou 2016: 117). It seems that the fertile soil of the region attracted the early farmers who were dependent on agriculture. In the Thessaloniki plain, apart from the settlement of Nea Nikomedeia which was founded in its west side, most of the known sites were founded on the slopes or the top of hills in the periphery of the plain (Giannitsa B, Stavroupoli, Drosia etc.). It has been argued, however, that the absence of early sites from within the plain probably relates to the fact that during the Holocene a large part of the plain, west of the Axios river, was probably submerged by the water of the Thermaic Gulf (Urem-Kotsou and Kotsos 2017: 275). Three sites (Komvos Apsalos, Apsalos Grammi and Sosandra Aridaia), which were founded on flat areas, were unearthed in the Almopia plain, while from the two sites in the Anthemountas basin, the first (Vasilika C)

was positioned almost in the center of the basin whereas the second one (Thermi B) on the gentle slope of a hill at the base of Mt. Kissos (**Fig. 2**) (Urem-Kotsou and Kotsos 2017: 276).

In Western Macedonia, in the Middle Aliakmon valley, four EN and MN settlements (Servia, Servia V, Kranidia Kryovrisi and Goules Varemenoi) were founded on low plateaus close to the south banks of the Aliakmon river (Ridley et al. 2000: 5; Chondroyianni-Metoki 1992: 36; 2002: 562-563), where the conditions must have been ideal for agricultural activities (Ridley et al. 2000: 294-295). Two additional EN sites were also discovered within the limits of the Middle Aliakmon valley. The first one (Roditis Paliambela), located in the north end of the valley, was unearthed close to one of the big streams of the area, where the environment must have been favorable for agro-pastoral practices (Chondroyianni-Metoki 2002: 558), while the second one (Kassiani Lavas Servia), found in the south end of the valley, was extended over the plateau of a low hill, close to the highest point of the natural passageway of Sarantaporos (Chondroyianni-Metoki 2011: 81; 2014: 339). In the Knidi valley, the two settlements from the EN and MN were located both in wooded hills, the first one (Kremastos Knidi) extending down a gentle slope (Toufexis 1994: 17) and the second one (Matsouka Rachi Knidi) stretching over a plateau (Karamitrou-Mentessidi 2005: 544). EN and MN sites in the Ptolemais-Vegoritis basin were established not only in the basin floor of Kitrini Limni (Mavropigi-Fylotsairi), but also in the wider semi-mountaineous area that surrounds the plain (Souloukia Pontokomi, Vrisi Pontokomi and Porta/Portes Xirolimni) (Karamitrou-Mentessidi et al. 2013: 1; 2015: 49; Karamitrou-Mentessidi 2014: 235, 237; 1998: 469). It seems that the area of Kitrini Limni provided an ideal environment for human and animal alimentation and for water and wood provisioning (Karamitrou-Mentessidi 2014: 233). Finally, the site of Ampelia Ornithones Filotas in the Florina basin was established on a low plateau crossed by streams (Ziota and Moschakis 1997: 43), while in the Kastoria basin, the settlement of Avgi was founded on the gentle slopes of a wide terrace, which was flanked by a Pleistocene-Early Holocene stream at its northern part (**Fig. 2**) (Stratouli 2007: 8).

A6. Settlement typology

In Macedonia two types of settlement are dominant from the beginning of the Neolithic and until the end of the period, the mound settlements (tells) and the flat-extended sites. The former type, also known as *toumba* in Macedonia, is formed through the "accumulation of anthropogenic deposits" in the same area over long periods of time, often hundreds or even thousands of years (Kotsakis 1999: 66). This type of settlement, due to the repeated rebuilding of houses on the same spot for long periods of time and for several generations, often display evidence of multiple habitation phases, represented by thick and rich deposits (Perlès 2001: 174). Flat-extended sites on the other hand, are characterized by the lateral shifting of the habitation space and buildings or minor structures during the long life of the site. As a result, flat-extended sites, as opposed to mound settlements, have usually a very small height (thin deposits) while covering larger areas, sometimes 10 or even 25 times larger than a tell site (Kotsakis 1999: 67). Their considerably larger size from that of the tells, however, does not necessarily mean that they were inhabited by respectively more occupants (Urem-Kotsou and Kotsos 2017: 276-277). Moreover, the evidence suggests that both tells and flat sites were encompassed by ditches already from the earliest phases of the Neolithic (e.g., Paliambela Kolindros and Apsalos Grammi) (Kotsakis and Halstead 2002: 410; Chrysostomou et al. 2001: 513-515). There are cases, however, in which settlements are not easily attributed to one of the two types (Porta/Portes Xirolimnis) (Karamitrou-Mentessidi 1998: 470). There are also cases where settlements, based on their architectural features, may fit another type, that of seasonal camps (Kassiani Lavas Servia) (Chondroyianni-Metoki 2014: 339), or even cases of settlements in which both types, that of the tell and the flat-extended type, are encountered in the same area (Paliambela Kolindros) (Kotsakis and Halstead 2007: 65).

A7. Settlement architecture

There are two main types of dwellings found in the settlements of Macedonia during the Neolithic period: the circular subterranean/semi-subterranean buildings and the free

standing rectangular structures (Urem-Kotsou and Fotiadis 2018: 33). Even though the latter type was considered to be the dominant one in Macedonia, since it was the only one known until recently (Kotsos 2017: 36), the available archaeological data confirms the co-existence of those two types in the settlements during all the phases of the Neolithic period. Irrespectively, however, of their contemporaneous use or not, it seems that the subterranean structures are associated more with the initial occupation phases of the settlements (e.g., Stavroupoli Ia and Thermi B) - mainly spanning the periods of from the EN till the MN -, while the aboveground structures usually characterize the latter phases of the Neolithic habitation (Urem-Kotsou and Kotsos 2017: 278, 280).

The circular subterranean/semi-subterranean buildings, also known as "pit-houses" or "pit-huts", are found in both a simple and a complex form (Urem-Kotsou and Kotsos 2017: 278). In their simple form, they consist of an underground part, usually a shallow pit dug in the natural ground, and an upper part, hut-shaped in form, made of organic materials, such as branches, reeds or straw (Pappa 2008: 323; Urem-Kotsou and Kotsos 2017: 278). The pit, which is rectangular, ellipsoidal or irregular in shape, has usually inclined walls, a flat bottom, and an average diameter of 2-3 m (Urem-Kotsou and Kotsos 2017: 278, Pappa 2008: 324). There are few cases, however, where the walls are dug vertically in the ground and their floor is coated with clay. By contrast, in their complex form, they consist of at least two smaller pits, each one of them supposedly representing a different part of the dwelling. The discovery of carbonized chunks of clay in their interior as well as post-holes in their periphery often suggest that these structures had clay walls that supported the roof (Urem-Kotsou and Kotsos 2017: 278). In the case of the free standing rectangular buildings, they consist of post-framed walls constructed of branches, or most rarely raw mudbricks (Stavroupoli), either way covered with clay. Although they usually have a single room, there are cases where they are divided into more than one spaces (Nea Nikomedeia) and have evidence of an upper floor (Goules Varemenoi) (Kotsos 2017: 37).

With the exception of some settlements where pit-houses were found relatively close to one another (Mavropigi-Fylotsairi and Revenia Korinos), these types are usually found in groups each one separated from the other by dozens of meters (Urem-Kotsou and Kotsos 2017: 278). By contrast, the available archaeological data concerning the arrangement of free standing structures in the settlements is meager and inconclusive. The only evidence

derives from the excavations of Nea Nikomedeia, where the structures are free-standing, built close to one another, sharing almost the same orientation, and are separated by narrow alleys and open-air cobbled yards (Kotsakis and Halstead 2006: 91)

Ditches, often surrounding the settlements or dividing their inner space, are constructed already from the earlier stages of the Neolithic in Macedonia (Paliambela Kolindros) with their construction features and size varying from site to site (Urem-Kotsou and Kotsos 2017: 280). For example, there are cases in which the depth and width of ditches measured over 4 m (Stavroupoli), around 4 m (Lete I) (Tzanavari and Filis 2009: 369-370), or less than 1 m (Urem-Kotsou and Kotsos 2017: 280). Ditches usually have the form of a triangular or U-shaped cross-section, or were constructed by a series of connected pits. In any case, they seem to have a communal character, and after their abandonment, dwellings and other structures were erected on their spot (Kotsos 2017: 39).

Apart, of course, from dwellings and ditches, other forms of structures are also encountered through Neolithic in the settlements of Macedonia (Urem-Kotsou and Fotiadis 2018: 33). Most common are the "auxiliary" structures, such as storage of variety of stuff including water or refuse pits (Nea Nikomedeia, Apsalos Grammi) (Pyke and Yiounni 1996: 49; Chrysostomou et al. 2000: 496-499; Tzanavari et al. 2002: 213), but there also cases where pits were formed by the extraction of clay as raw material (Thessaloniki International Fair) (Pappa 2008: 57). All these architectural features, as well as other forms not mentioned here, such as ovens, hearths, yards etc., will be commented upon more analytically below, when the EN and MN architectural remains of each site will be presented (see below Chapter 2).

A8. Settlement economy

From the very beginning of the Neolithic period the economy of the settlements in Macedonia, as it is the case with almost all contemporary sites in Greece, was based on farming and pastoralism, with other dietary habits and needs of the Neolithic people to be supplemented by hunting and fishing activities. The study of faunal remains collected from various Neolithic settlements of Macedonia reveals the exploitation of all four main domesticates (sheep, goat, cattle, pig) along with wild animal species, during all the stages

of the Neolithic, while the archaeobotanical evidence testifies to the use of a wide variety of cultivated and wild plants used for consumption, construction purposes, healing etc. (Valamoti 2014: 419).

The plant species included cereals, legumes, nuts, fruits and other wild plants. From cereals, einkorn (*Triticum monococcum*), emmer (*Triticum dicoccum*) and barley (*Hordeum* sp.) were the most common species (Hubbard 2000: 354; Housley 2000: 302; Valamoti 2015: 163-166), even though in Macedonia *Triticum monococcum* appears to have been preferred, at least at some sites, over *Triticum dicoccum*, which is perhaps more well presented in Southern Greece (Kotzamani and Livarda 2018: 98; Urem-Kotsou and Fotiadis 2018: 34; Perlès 2001: 155). The spread of all these wheat types into Greece most probably originated from the East, Anatolia and other regions of the Fertile Crescent, while their processing seems to have been a lengthy and complex process, including, apart from the threshing, several other additional stages, such as the crushing, the winnowing and the sieving of the material (Valamoti 2014: 420). From legumes, lentils (*Lens* sp.) appear to have been used more frequently (Mavropigi-Fylotsairi, Apsalos Grammi) (Valamoti 2001: 521), while peas (*Pisum* sp.), bitter vetches (*Vicia ervilia*) and grass pea (*Lathyrus sativus*) were also widespread (Giannitsa B) (Valamoti 1990: 177-178; 2014: 420). From the wild plant species, the seeds from the turpentine tree (*Pistacia terebinthus*), the acorns (*Quercus* sp.), the grapes (*Vitis vinifera*), the figs (*Ficus carica*), the blackberries (*Rubus fruticosus agg.*) and the elderberries (*Sambucus* sp.) were also valuable resources of food (Stavroupoli) (Margariti 2004: 605-606; Valamoti 2014: 421), but most probably in the periods ensuing the EN, when their availability in the environment would have been larger in quantities and their caloric value higher (Perlès 2001: 165-166).

On the other hand, although zooarchaeological remains verify the domestication and breeding of sheep, goats, cattle and pigs all through the Neolithic period, they also reveal that the first two categories in contrast to the latter two were the prevalent domesticates in the earlier phases, while cattle and pigs increased mainly during the LN (Urem-Kotsou and Fotiadis 2018: 35). This predominance of the sheep and goats over the cattle and pigs is reflected on the zooarchaeological record of all excavated sites, such as Nea Nikomedeia (Rodden 1964b: 369), Paliambela Kolindros (Halstead and Isaakidou 2013: 132, Tab. 7.2), Stavroupoli (Giannouli 2004: 490), Mavropigi-Fylotsairi (Karamitrou-Mentessidi et al.

2015: 61) and others. Apart from the four domesticates, however, in some cases, dogs were also represented by smaller percentages (Apsalos Grammi, Stavroupoli) (Eleftheriadou 2001: 522; Giannouli 2004: 490). The wild fauna is usually represented by wild deers, hares and boars (Apsalos Grammi, Stavroupoli) (Eleftheriadou 2001: 522; Giannouli 2004: 490), but the use of other wild animals, such as aurochs, foxes, birds and others, is also attested (Mavropigi-Fylotsairi) (Karamitrou-Mentessidi et al. 2015: 61). Regardless, however, of the differences in the numbers of the animal populations, on the available data, the domestic animals in Macedonia were exploited mainly for meat production rather for dairy purposes (Urem-Kotsou and Fotiadis 2018: 35), while their herding must have been performed in uncultivated lands around the settlements, in fields of reeds, or, possibly, in distant pasturelands that would have required the seasonal movement of the flocks (Valamoti 2014: 419-420).

B. Chapter 2: The archaeological evidence

B1. The Early and Middle Neolithic period in Central Macedonia - The sites

The Langadas basin

B.1.1. Lete I (EN-MN)

The Neolithic settlement of Lete I was discovered in 2002 in the northwestern limits of the homonymous modern village, which lies to the northwest of Thessaloniki (**Fig. 2**) (Dimoula et al. 2014: 491). Its existence was already noted during the First World War, when English soldiers excavated the area north of the modern Lete and found two pits containing Neolithic sherds (Gardner and Casson 1918-1919: 13-15). The absence of surface finds and the extensive soil erosion caused difficulties in the identification of the settlement's exact location, and the estimation of its total size (Tzanavari and Filis 2002: 198). The eight-year research initiated in 2002 in the region revealed part of the flat-extended settlement dating to the end of the EN and to the beginnings of the MN period according to pottery typology (Pappa and Tzanavari 2010: 207; Dimoula et al. 2014: 498).

The excavations of the Neolithic settlement revealed architectural remains in two distinct areas, named conventionally site A and site B, approximately 700 m distant apart. In the area of site A (**Fig. 3**), which is located in the northwestern end of modern Lete, the excavations in 2002 uncovered an ellipsoidal pit-house, large quantities of lithic products, including flint blades, hand-axes, sling-bullets and other material. The floor of the house was made of beaten clay, while the dwelling itself was connected with some circular storage pits found in its proximity. In the same year, a second pit-house was excavated, almost circular in shape, 6m in diameter, which was formed by three joined smaller pits found in its interior (Tzanavari and Filis 2009: 369-370). Later, in 2010, the excavations in the same area, brought to light another seven pits, of which three were ascribed as houses (**Fig. 4**),

while the others were considered refuse pits (Pappa and Tzanavari 2010: 210). In addition to pits, two different parts of ditches were also discovered in the western limits of the contemporary settlement. The one (**Fig. 5**), running east-west with 1 m depth, had a V-shaped cross-section and dimensions 3,80 × 4,00 m (Tzanavari and Filis 2009: 369-370), while the other ditch (**Fig. 6**), with orientation SE-NW, was constructed by a chain of pits that formed a uniform channel (Pappa and Tzanavari 2010: 209). In the case of site B (**Fig. 7**), which is located in the center of the modern village, five pits in total were revealed, of which only 2, based on their size and content, were securely interpreted as houses. The pits contained large amounts of pottery, bones, and lithic tools, as well as animal horns in smaller percentage (Pappa and Tzanavari 2010: 210).

To sum up, the archaeological data shows that the inhabitants of the settlement of Lete I depended on farming, lived in flat-extended type of site, resided in semi-subterranean houses with auxiliary structures located outside but close to them that were used as storage and refuse pits, while in communal spaces various activities were taking place (Tzanavari and Filis 2009: 373).

B.1.2. Lete III (EN)

The Neolithic site of Lete III was discovered in 2002 during construction works on the Egnatia highway. It is located in the west side of Langadas basin, at 80 masl, at a distance of approximately 1,5 km northeast from the Derveni passage (**Fig. 2**). As in the case of Lete I, the extent of the settlement remains unknown due to the lack of surface finds and landscape features of the area, which are characterized by flat and arable lands often covered by the alluvial deposits of Koroneia lake (Tzanavari et al. 2002: 211). According to the excavation data, the settlement must have been of flat-extended type (Tzanavari et al. 2002: 211), covering more than 100 acres, dating to the end of the EN or the beginnings of the MN period as pottery typology suggests (Tzanavari et al. 2002: 218).

In the excavated area of some 150 m^2 three pits were unearthed. They were found dug in the alluvial deposits of the lake, beneath a topsoil of 1 m thick, which contained few Neolithic tools and sherds, as well as pottery from later periods. The largest in size pit - conventionally named pit 1 - with 8 × 3 m dimensions and 1 m depth, had an irregular

oblong shape, formed by three joined smaller pits of different size placed in a row (**Fig. 8**). Based on its big size and the remains of hearth or oven, it was interpreted as a pit-house (Tzanavari et al. 2002: 212).

The two other pits (pits 2 and 3) were located to the west of pit 1 (**Fig. 9**). Contrary to the latter, they had a circular shape, were smaller in size with vertical walls. From the interior of pit 2 a large amount of pottery was collected as well as tools and an intact pot, while pit 3 yielded a smaller assemblage of sherds. The two pits were probably connected with a ditch, and were probably used as water storage containers, to judge from their shape, size and construction details (Tzanavari et al. 2002: 213)

B.1.3. Mikri Volvi (EN-MN)

The site of Mikri Volvi was discovered in 2005 during constructions works on the Egnatia highway. It is located along the southern hills of Mt Vertiskos, in the eastern side of the Langadas basin, at a distance of 2.4 km east from the modern village and 1,2 km from the shore of the lake Volvi (**Fig. 2, 10**). The settlement extends from the lower part of a gentle hill slope to the plain, and is defined to the north by hills and streams, to the east and west by other streams, and to the south by flat arable fields formed by the alluvial deposits of the lake. According to the available evidence, the settlement was of small size covering an estimated area of 200 × 150 m in total, which place it in the group of small settlements in the Langadas basin (Kotsos and Urem-Kotsou 2016: 120; Lioutas and Kotsos 2006: 241). Based on relative chronology, the settlement must have been inhabited in the end of the EN and the beginnings of the MN period (Urem-Kotsou and Kotsos 2017: 293).

The rescue excavations of 2005-2006 revealed a series of 138 pits (**Fig. 11**), and the architectural remains of three above-ground houses (**Fig. 12**). The pits, dug in the natural bedrock, were mainly of circular shape with diameter ranging from 50 cm to 1,80 m and depth from 30 cm to 1,20 m; one of them with 1 m in diameter and 1 m depth, had walls lined with stones. Two of the pits stand out from the rest by their size and distinct architectural features. Both had diameter exceeding the 4 m and had an irregular circular shape, which indicates they may have been subterranean parts of pit-houses. A series of

smaller pits was found grouped outside the residential area. Finds from their interior have not provided conclusive information neither for their character nor for their relation with the above-ground houses (Lioutas and Kotsos 2006: 241). The evidence for some of them points to their use as storage pits (Urem-Kotsou and Kotsos 2017: 292).

The only firm evidence for the spatial organization of the settlement derives from the three poorly preserved above-ground and free-standing houses of unknown size, that were destroyed by fire and found with almost no finds in their interior. They were located at different spots in the area, but, nonetheless, displayed common architectural features. The houses must have been rectangular, constructed in wattle-and-daub and with floors of beaten clay (Urem-Kotsou and Kotsos 2017: 292; Kotsos and Urem-Kotsou 2016: 126). Most information comes from one of the better preserved dwellings (house B). It had a hearth in its interior, built directly on the floor and had stone slabs as its substratum (**Fig. 13**). The same technique was also used for the substratum of a hearth in house A, which, however, was constructed on a bench and stood above the floor (**Fig. 14**). The existence of ovens in or outside the dwellings was not attested. Apart from two vessels found in house B and a small askoid in house A, other finds were missing from their interior, which indicate that the houses were emptied before they were destroyed by fire (Kotsos and Urem-Kotsou 2016: 126).

B.1.4. Koroneia (EN-FN)

The site of Koroneia was discovered in 2009 during the construction of a modern ditch that connects the lakes of Koroneia and Volvi, and excavated from 2013 to 2015 by the Ephorate of Antiquities of Thessaloniki City (Kotsos et al. 2015). It is located on a low elevation, 1650 m to the east of the shore of the homonymous lake in the Langadas basin (**Fig. 2**) (Urem-Kotsou and Kotsos 2017: 276). The area is characterized by fertile land and small streams, which drained into the lake. Three radiocarbon dates indicate that the settlement was inhabited from the late EN, between 5965-5641 BC, but also in the earliest phases of the FN, according to pottery. A small settlement of the Iron Age and a Roman farmhouse testify that the site was inhabited in other periods. Based on the archaeological data, the total area of the Neolithic settlement must have not exceeded 2 acres (Kotsos

2017: 53-54).

The excavations revealed 116 Neolithic pits, of which 11 may have been used as semi-subterranean parts of houses, two as wells and many others as storage facilities. The pits had irregular, circular or ellipsoidal shape. The majority of the irregularly-shaped pits, formed by joined smaller ones, were shallow with a size ranging from 6,50 × 3,50 m to 2,80 × 2,00 m (**Fig. 15**). Some of them contained charred chunks of clay that most probably derived from ovens, which are found also outside the pit-dwellings. The ovens had clay walls and floors consisted of a substratum of stones and large sherds coated with one or more clay layers (**Fig. 16**). The circular or ellipsoidal pits, found in the periphery or between the houses, had a diameter varying from 0,60-1,50 m and a depth from 0,30-1,00 m (**Fig. 17**). These were probably used for storage. The 2 pits, interpreted as wells, had circular shape, diameter 0,85 m and walls dug vertically in the natural bedrock (**Fig. 18**) (Kotsos 2017: 54).

Finally, a part of a ditch, measuring 9 m, was uncovered in the western side of the settlement (**Fig. 19**). Its width ranged from 2,95-3,65 m and its depth from 0,65-1,07 m. The discovery of eight deceased in flexed position in the interior of the ditch suggested its use as a burial area after its abandonment (Kotsos 2018: 55).

B.1.5. Evagelismos (MN)

The site was discovered in 2000 during construction works on Egnatia highway, at the northeastern limits of the modern village of Evagelismos, located on the north shore of the lake of Koroneia (known also as Ag. Basileios) (**Fig. 2, 20**) (Pappa and Adaktylou 2000: 187). The excavation, which was conducted by the 16th Ephorate of Prehistoric and Classical Antiquities, uncovered 15 pits. Only two of them (pits 10 and 12) were dated to the MN, while the other 13 to the Iron Age, according to pottery. Pit 10 yielded both MN and Iron Age pottery along with few lithic tools, grinding stones, and three clay sling-bullets (**Fig. 21**). Pit 12, which was located to the west of pit 10, also contained MN pottery mixed with Iron Age sherds together with one intact lithic mattock and one clay object with impressions, among others (**Fig. 22**). Noteworthy was also the discovery of a possible post-hole in its interior, which had ellipsoidal shape and dimensions 10 × 7 cm. Considering

that the excavation was conducted in a limited area little can be said about the architecture of the MN phase of the site (Pappa and Adaktylou 2000: 188-189).

The Thessaloniki plain

B.1.6. Nea Nikomedeia (EN-LN)

The site of Nea Nikomedeia was excavated in 1961-1964 by the Universities of Cambridge and Harvard, under the direction of R.J. Rodden (Pyke and Yiounni 1996: 5). It is located in the western side of the plain of Thessaloniki, west of Mt Vermion and approximately 10,5 km northwest of the modern city of Veroia (**Fig. 2**) (Pyke and Yiounni 1996: 3-4). At the time of occupation, the settlement was situated about 3 km off the west coast of the Thermaic Gulf (Stratouli 2007: 961). The settlement forms a low mound of major dimensions 220 × 110 m, which currently rises 1,50-2,50 m above the plain and 10-11 masl (Pyke and Yiounni 1996: 3). The total area of the mound was estimated at about 24 acres (Pyke and Yiounni 1996: 47). Based on the archaeological data and radiocarbon dates, it was inhabited in the EN, abandoned in the MN, and re-occupied during the LN period (Pyke and Yiounni 1996: 48, 195)

The excavations, which covered an area of 1690 m^2 at the eastern-southeastern side of the mound, brought to light 24 free-standing rectangular or square structures (with the exception of one probably triangular) that were attributed to 3 or 4 building phases of the EN (**Fig. 23**) (Pyke and Yiounni 1996: 34, 39). The post-framed dwellings, found organized in 9 groups, had an average size of 8,50 × 6,50 m and orientation from east to west. They usually consisted of one or two rooms, the floors were made of compacted clay or clay with pebbles and the walls of timber posts, branches and reeds coated from the inside and outside with pure clay or clay mixed with chaff (Pyke and Yiounni 1996: 40-46). In some cases, the posts of the walls rested directly in the ground without the use of foundation trenches while additional posts were used as buttresses to support the walls from the inside (Pyke and Yiounni 1996: 42). Burnt debris at some spots was uncovered, suggesting possible destruction of some buildings by fire (Pyke and Yiounni 1996: 48). As for the roof of the houses, no evidence was found (Pyke and Yiounni 1996: 44). A very large building located

at the center of the eastern side of the mound, was also investigated. It had a size of about 12 × 12 m and was divided by two rows of posts into three parts. The central part, which was the largest in size, was flanked by one smaller room on each side. Based on its unusual size, architecture and content (figurines, axes, pellets, flint blades etc.), it was proposed that it may have been used as a communal building, possibly with "ritual" function (**Fig. 24**) (Rodden 1964b: 368).

Several pits were also unearthed in the settlement. They were found scattered in various locations across the site without being organized in groups. In some cases, they were coated with clay suggesting their use for storage. Others were used for rubbish disposal, while some of them must have been formed during the extraction of clay for the construction of the dwellings. However, the evidence for their actual use was not entirely definite (Pyke and Yiounni 1996: 49). Unclear was also the evidence as to the very few ovens and hearths reported at the site. The report of R.J. Rodden's excavation (Rodden 1962) provided very little information concerning their size, shape and exact location to draw any safe conclusions about their relation to the houses and the construction details (Pyke and Yiounni 1996: 51). Finally, parts of several ditches in the eastern part of the excavated area were also found. On the basis of the ceramics and objects related to them, they were initially dated to the LN period, but two parallel narrow ditches in the same area might have belonged to the EN (Pyke and Yiounni 1996: 52).

An estimation of the population size in each phase of the Neolithic settlement has been attempted on the basis of stratigraphic observations, the total number and the size of the structures ascribed to each phase. Pyke proposed that the settlement during Phase 1 and 2 might have had about 100 houses, while in Phase 3 approximately 75. Considering that each household consisted of 6-7 individuals, he estimated that the total number of the inhabitants of Nea Nikomedeia during the two earlier phases (Phases 1 and 2) must have been between 500-700, and in the last phase (Phase 3) between 300-375 (Pyke and Yiounni 1996: 47-48).

Archaeobotanical and zooarchaeological remains provide information for the economy of the Neolithic village. The collection and preliminary examination of about 2000 carbonized grains from the EN contexts has ascertained the presence of wheat, barley, lentils, pea and possibly wild cereal-type grasses, while the study of approximately 15000 animal bones has identified primarily sheep and goats, and secondly pigs and cattle, along

with possibly wild pigs and bisons (Rodden 1964b: 369).

B.1.7. Giannitsa B (EN-MN-LN)

The Neolithic settlement of Giannitsa B was discovered in 1989 at the southwestern limits of the modern city (**Fig. 2, 24**). It is located on a gentle slope of a low mound, that covers the south part of the city. The landscape of the area is characterized by hills, forests and arable land, which created ideal conditions for cultivation, grazing and hunting activities (Chrysostomou Pan. 1989: 119-120). Based on the archaeological evidence, the total area of the settlement was estimated at approximately 30 acres, while the settlement had three distinct habitations phases, which were securely dated to the EN period (Chrysostomou Pan. 2001: 169). Traces of occupation during the LN period were also identified (Chrysostomou Pan. 1989: 123), while part of the ceramics assemblage that was initially attributed to a MN occupation, was later placed in the EN period (Chrysostomou Pan. - Chrysostomou P. 1990: 173). Nonetheless, parts of ditches revealed in 1990, 1991 and 2000, dated to the end of the EN and used until the middle of the MN period (**Fig. 25**) suggest that the settlement was inhabited also in the MN (Chrystostomou Pan. 2001: 492).

The first EN habitation phase is represented by the architectural remains of a post-framed house which had elliptical shape and clay walls. The entrance of the dwelling (0,50 m width) was located in its western side. After the abandonment of the house, a pit, with diameter approximately 2 m and depth 0,70 m, containing alternating layers of soil and ash, was dug in the center of its interior. Another post-framed house of rectangular shape and walls rested on a foundation trench of 0,50 m width and 0,40 m depth was ascribed to the second habitation phase. The dwelling had its floor covered by hard limestone material, while the roof was probably four-pitched (Chrysostomou Pan. 1991: 111-113). The second phase is also represented by the destruction layer of a post-framed complex dating between 6300 and 6000 BC, which was unearthed during later excavations in the area. The complex is comprised of three interconnected four-sided spaces, of which the central one was the largest, covering an area of 64 m^2 (**Fig. 27**). It had a floor made of beaten clay. In the complex interior, free-standing storage containers and pits, a circular hearth and thermal structures are revealed, as well as other clay artifacts and structures of unknown use

(Chrysostomou Pan. 2001: 494). The third habitation phase is represented by a single square post-framed building, which was based on a foundation trench of 0,50-0,60 m width. Architectural elements were not preserved in its interior (Chrysostomou Pan. 1991: 113).

The practice of agriculture is testified through the archaeobotanical evidence collected from the site. The study of the soil samples from the excavation of 1990 has certified the presence of cultivated species (wheat, barley, lentils, amber, pea and bitter vetch) and wild ones (wild buckwheat, ryegrass and darnel) (Valamoti 1990: 177-178).

B.1.8. Axos A (EN)

The Neolithic site of Axos A is situated 1,5 km south of the homonymous modern village and almost 4 km west of the modern city of Giannitsa (**Fig. 2, 28**). The excavations carried out in 1996 revealed part of a flat-extended settlement, that must have covered an area of at least 30 acres (Chrysostomou 1996: 162), which was inhabited between 6600 and 6360 BC according to radiocarbon dates (Maniatis 2014: 207).

The excavation, which was conducted almost in the center of the settlement, over an area of 10 × 10 m, identified three distinct habitation phases consisting of free-standing buildings. The first phase is represented by one rectangular post-framed house, probably single-roomed, with double pitched roof (**Fig. 29**). Concentrations of large amount of burnt clay in its interior and in the surrounding area suggest that the house was destroyed by fire. The pottery of this phase was exclusively monochrome. The second phase consists of two rectangular post-framed houses that have floors made of beaten clay with substratum of small limestone gravel. To the third phase of the settlement belong a rectangular post-framed house, subdivided in smaller spaces, with walls based on foundation trenches. Beneath its floor an infant jar-burial was found. The ceramics of the two later phases included painted pottery along with monochrome. The presence of a deep circular pit in this area was associated with the construction activities in the settlement and rubbish disposal rather than storage (Chrysostomou 1996: 162-163).

B.1.9. Komvos Apsalos (EN)

The Neolithic site of Komvos was discovered in 2001 during constructions works along the new provincial road from Apsalos to Aridaia, approximately 1400 m south of the Neolithic settlement of Apsalos Grammi (**Fig. 2, 30**). The Neolithic deposits were located at the edge of the archaeological site. The excavations brought to light five pits in total (Chrysostomou and Georgiadou 2001: 525).

The first pit, elongated in shape, was 3,70 × 3,30 m in size and 0,60 m in depth. It included large amount of pottery and plenty of lithic tools, such as blades, flakes, axes etc. Based on morphological criteria, the excavator suggested that it may have constituted part of a subterranean house like those attested to other Neolithic sites. At its northern side, a second pit was unearthed, inside of which a storage pit and a post-hole were identified (**Fig. 31**). The post-hole, grounded in the natural bedrock for 0,53 m, had a diameter of 0,60 m and stones on its bottom presumably to secure stability of the post and protect it from humidity (Chrysostomou and Georgiadou 2001: 528-529). The fourth pit was 0,56 m in depth and 1,60 m in size, while the fifth 0,30 m in depth and 1,60 × 1,40 m in size. Both were filled with black-colored soil and contained, among others, pottery and lithic tools (Chrysostomou and Georgiadou 2001: 529).

B.1.10. Sosandra Aridaia (EN-LN)

The site of Sosandra is situated approximately 1 km southwest of the homonymous modern village and 3 km southwest of the city of Aridaia (**Fig. 2**), in the landscape characterized by two low hills (Mikri and Megali Korfoula), and a dense hydrographic network, including two large streams (Myrrorema and Thermopotamos) and springs. The investigation was conducted by the IZ' Ephorate on the occasion of the construction of a central water tank for the water supply network of Aridaia. Two different settlements of the LN and EN were identified in the area in 2003 and 2007 respectively. The EN settlement, which belongs to the flat-extended type with large empty spaces between the buildings, is located on the plain floor, northwest of the hill "Mikri Korfoula", at an altitude of 147 m (Georgiadou 2015: 15-16). On the basis of radiocarbon and archaeomagnetic dating, it was

dated to between 6066-5840 BC and 5860-5688 BC (Georgiadou 2009: 94; 2015: 45; Aedona and Kontopoulou 2015: 157-161).

The investigations at the EN settlement revealed two buildings that were located 50 m apart. The one was excavated in 2008, while the other remained unexcavated. The excavated one was well preserved due to the fire that destroyed it providing a wealth of evidence. The house was rectangular and post-framed, measuring 9,20 × 6,30 m (58 m^2), and with orientation northwest-southeast (**Fig. 32, 33**). The external walls of the house, 30-33 cm wide, rested on the ground without a foundation trench and were made of timber posts (10-12 cm in diameter), placed at intervals of 1,00-1,50 m, and covered from both sides with clay. Thinner poles, split-poles and planks, and occasionally wedges or reeds, were used to build the walls between the main timber posts. Two rows of poles divided the interior of the house into three areas and supported the double pitched roof (**Fig. 34**). In the eastern area, 6,30 x 2,60 m (16,38 m^2) in dimensions, a domed clay oven (80 x 56 cm) and seven storage pots were found, suggesting its use as a cooking area for food preparation and storage (**Fig. 35**). The western part, with a size of 6,30 x 2,40 m (15,12 m^2), was interpreted as a residential area, where plenty of bowls, jars and other vessels were discovered (**Fig. 36**). An almost completely destroyed oven, a circular heap of stones and a circular cavity were also found in this area. Finally, the central area with dimensions 6,30 × 4,20 m (26,46 m^2), must have been used as a working area possibly for processing cereals as the many ground stone tools found on the floor indicate. Two storage pits were also unearthed in the house: pit 1, located in the central area, was 0,85 m deep and of conical shape; pit 2, situated in the western part, was 0,56 m deep and had an irregular shape. Based on the archaeobotanical data, both were used for storing lentils, although few grains of wheat and other cereals and legumes were also identified (Georgiadou 2015: 19-38, Valamoti 2015: 164).

The archaeobotanical study of the relatively poor in quantity material recovered from the pits and other areas in the interior of the house, has identified the remains of einkorn (*Triticum monococcum*), emmer (*Triticum dicoccum*), barley *(Hordeum* sp.), lentils (*Lens* sp.) and grass pea *(Lathyrus sativus*) (Valamoti 2015: 163-166).

B.1.11. Apsalos Grammi (MN)

The site of Apsalos Grammi was discovered in 1999 during construction works on the new provincial road from Mavrovounio to Aridaia and excavated in 2000-2001. The settlement is located northwest of the homonymous modern village, in a small plain near the foothills of the Edessa plateau (**Fig. 2**). Almopaios river and several other streams run across the area. Based on the archaeological evidence, the estimated total area of the settlement is approximately 50 acres (Chrysostomou et al. 2000: 492). According to radiocarbon dates, the settlement was inhabited during the MN period, between 5701-5622 BC (Chrysostomou et al. 2001: 514).

The architectural remains of the settlement are represented by a number of pits and parts of two ditches that enclosed the residential area. The pits, dug into the natural bedrock, were circular in shape and of small dimensions. Their maximum depth reached 0,80 m, while their diameter ranged from 1,00-1,20 m (Chrysostomou 2000: 496-499). Some of them had plastered walls suggesting their use for storage purposes (Chrysostomou 2001: 518). They contained pottery, burnt clay, animal bones, lithic tools and other material, while several were sealed by a layer of stones or burnt clay material. Based on their small size and diverse content, the majority of them seemed to have been used for rubbish disposal in addition to storage. Exception to this, is a pit, which was probably a ceramic kiln located at the center of the excavated area (Chrysostomou et al. 2000: 499). The kiln, with diameter ranging from 1,00-1,15 m, had circular form and its walls covered by clay. From its interior, a grid with 66 preserved holes was unearthed. Another deep pit, which was interpreted as a well (Chrysostomou et al. 2001: 518), and a series of pits that encompassed an area characterized by post-holes (Chrysostomou et al. 2001: 519) were also found. The pits, which were adjacent to the post-holes, were interpreted either as subterranean houses or as auxiliary structures to the main pit-dwelling. Noteworthy was also the discovery of a layer of burnt clay, that covered some of the pits, and probably derived from above-ground dwellings, which were burnt down. It is not clear, however, whether the subterranean and above-ground houses were used simultaneously (Chrysostomou et al. 2001: 519).

The southern ditch with orientation northwest-southeast and 5,30 m depth was investigated in a length of 13 m. Its width at the surface reached approximately 8 m and at

the bottom 2,5 m, forming a channel U cross-section. It was located at a distance of approximately 70 m from the northern ditch (Chrysostomou et al. 2001: 513). The latter with orientation northeast-southwest and 4,60 m depth was excavated at 14 m length. Its width at the bottom reached 2,00-2,5 m (Chrysostomou et al. 2001: 514-515). Both ditches contained large amounts of burnt clay material in the upper layers of their interior, while sand was discovered in the deeper layers. Burnt clay, which sometimes bore wooden imprints, was presumably the remains of structures that were destroyed by fire (Chrysostomou et al. 2000: 494).

Bioarchaeological material provides information for the farming economy of the settlement. The archaeobotanical study of the material collected from the excavated area certified the presence of wheat, barley, lentils, flax, elder, grape and blackberry (Valamoti 2001: 521), while the study of bones verified the breeding of all four domesticates (goats, sheep, cattle, pigs) including dogs, and the hunting of wild animals (deer, hares and boars) (Eleftheriadou 2001: 522).

B.1.12. Drosia (EN-MN)

Recue excavations at the Neolithic Drosia was undertaken in 1992 during construction works at the industrial zone of the city of Edessa that destroyed a large part of the settlement. It stretches over a plateau at the top of a hillock, which is located in the catchment basin of the Agras river, east of the Lake Vegoritis (**Fig. 2, 37**). The hillock was until recently defined to the north, east and west by a swamp, while in its close proximity two water sources were discovered (Kotsos 1995: 195). The excavations covered an area of 40 m^2 revealing the remains of a flat-extended settlement, the estimated total area of which was over 3,4 acres (Andreou et al. 1996: 570). Based on the ceramic typology, the site was dated to the end of the EN and the beginning of the MN period, approximately between 6000-5500 BC (Kotsos 1995: 200; Andreou et al. 1996: 570).

The architectural remains of the settlement are represented by two partly-preserved earthen house floors and one pit. One of the house floors (house A), comprised of burnt clay and timber infrastructure, revealed a grinding stone (**Fig. 38**), suggesting that food preparation activities may have taken place in this area. The other (house B), located 12 m

to the north of house A, had similar construction characteristics, and bore evidence of post-holes. Finally, at 1 m distance from house B, a pit with approximately 3 m in diameter and 0,40 m depth was unearthed. The material collected from its interior includes large amount of pottery and lithic tools, as well as a few bones. Its use was probably associated with the adjacent house B (Kotsos 1995: 197-199).

B.1.13. Thermi B (MN-LN)

Few kilometers east of Thessaloniki is situated the Neolithic site of Thermi B, which was discovered during rescue excavations in 1987, close to the Bronze Age mound known as Thermi A (**Fig. 2, 39**) (Grammenos et al. 1990: 226; Grammenos 1992: 382). Thermi B is a flat-extended settlement (Pappa 1990: 234), which occupied at least 100 acres (Urem-Kotsou and Kotsos 2017: 284). The local landscape is characterized by low hills and arable fields (Grammenos et al. 1990: 228). According to the archaeological record, Thermi B was inhabited from the end of the MN to the end of LN I (Pappa et al. 2001: 276), although finds belonging to the LN II were also discovered (Pappa et al. 2008: 343).

From the three distinct chronological phases identified during the initial excavations in 1987, conducted in an area of 96 m^2 and at some parts along the periphery of the settlement (Pappa 1990: 229), only one phase, that of Thermi I, was attributed to the end of the MN period (Pappa 2008: 71). To this phase belong a group of eight pits, located in the eastern part of the settlement (Pappa 2008: 93). Pits 58, 57 and 48 were chronologically considered the earliest. Pit 58 yielded an important number of stones, bones and lithic debris, while the pit 57 revealed charcoal material, bones, pottery along with some chipped stone tools and shells. Pit 48 (**Fig. 40**) contained a considerable amount of stone tools and smaller assemblages of pottery, shells, lithic debris and bones. Pit 55, which follows chronologically the previous three, contained pottery, shells, few chipped stone tools and shells. The latest in chronological order and larger in size was pit 47 (**Fig. 41**). The excavation of its deposits revealed four stone layers, many sherds and chipped stone tools, bones and mills, charcoal material and a very small amount of shells (Pappa 2008: 71-73). Notable is also pit 49 (**Fig. 42**), which yielded many pottery fragments, bones and stone tools, and some shells. In the upper layer of its interior a hearth was found (**Fig. 43**). The

discovery of a thermal structure outside the house suggests that cooking activities were practiced outdoor (Pappa 2008: 73).

Considering that most of the evidence refers to the LN phase of the settlement, and that the actual use of the MN pits remains uncertain (Pappa 2008: 73), little can be said about the spatial organization and architecture of the MN phase of the settlement. The same seems to apply to other categories of evidence such as the MN economy. All reports regarding the bioarchaeological material (Giannouli 1990: 262-278; Giannouli 1992: 413-426; Valamoti 1992: 443-454 etc.) do not specify whether it comes exclusively from the MN phase of the settlement, and therefore any conclusion concerning the early economy of the MN site remains rather unclear.

B.1.14. Thessaloniki International Fair (MN)

The Neolithic settlement was discovered in 1993 during the construction of the Vellideio Convention Center in the southern part of the Thessaloniki International Fair, which lies in the center of the modern city of Thessaloniki (**Fig. 2, 44**). It is located in the eastern coastal zone of the Thermaic Gulf, an area which has not been altered by the river deposits of Thessaloniki's plain and, presumably, has changed little from the Neolithic times. An area of 825 m^2 was excavated revealing deposits of approximately 1 m thick, containing evidence from the Neolithic period. The total size and limits of the settlement remain unknown. According to ceramic typology and stratigraphic observation, the settlement was dated to the end of the MN period (Pappa 2008: 55-57).

The investigation unearthed 15 pits in total, the majority of which were located in the northern part of the excavated area, while, in the southernmost part, which may have constituted the southern limit of the settlement, an area of irregular-shaped depressions was revealed (Pappa 2008: 63). In terms of shape and content, the pits were classified in three main types. The first type is represented by 10 "simple" pits, which had cylindrical shape, vertical walls, concave bottom, diameter ranging from 1,50 - 2,20 m, and depth varying from 0,40 - 1,20 m (**Fig. 45, 46**). These pits were most probably used for storage. The second type consists of three "complex" pits, which consisted of smaller pits dug in the floor and had a diameter ranging from 4-6 m (**Fig. 47, 48**). These smaller pits were probably

not built simultaneously and their architectural features rather exclude the possibility that they have been used as houses. The third type is represented only by 1 pit, which was located in the southern area, and based on its architecture, size and content may have been a subterranean part of pit-dwelling (**Fig. 49**). It had a flat bottom, slightly bigger size than the other pits, and different kind of finds, such as grinding tools, that suggested indoor activities.

Pits contained large concentrations of pottery, animal bones, shells, and numerous flint, limonite and quartz pieces (Pappa 2008: 64-65). On the basis of the evidence, it has been suggested that the north part with the pits was mainly used as a waste disposal area while the south part including the depressions (**Fig. 50**), along with few pits in the north part, for extracting clay (Pappa 2008: 57).

B.1.15. Vasilika C (MN-LN-FN)

The site of Vasilika C was discovered in 1967 (French 1967: 39), and firstly investigated at the beginning of 1980's by D. B. Grammenos (**Fig. 2, 51**). In 2011, a survey research was conducted in the area (Andreou et al. 2011), followed by the excavations from 2013-2015 conducted on the occasion of the Egnatia highway construction works. The site is located almost in the center of Anthemountas river basin, 2,5 km outside the homonymous modern village, to the east of Thessaloniki (**Fig. 52**) (Urem-Kotsou and Kotsos 2017: 285). To the west of the Neolithic settlement runs the Droupalia river. It is a flat-extended settlement, which must have covered an area of approximately 180 acres. Based on the archaeological record, the settlement was inhabited from the end of the MN to the EBA (Grammenos 1991: 30-31). The earliest phase of the settlement (Vasilika I), dated to the end of the MN period, is represented only in deposits excavated during the 1983 by D. Grammenos (Trench II, depth from 2,27 to 5,80 m). Architectural remains were not reported (Grammenos 1991: 30-31).

B.1.16. Stavroupoli (MN-LN-FN)

The site was discovered in 1974 and excavated from 1994 onwards by the ΙΣΤ' Ephorate

of Prehistoric and Classical Antiquities. The settlement is located in the eastern part of the modern city of Thessaloniki (**Fig. 2, 53**) (Grammenos and Kotsos 2002b: 12). It lies on a low hill, flanked by Dendropotamos and Bouboulinas streams from east and west sides, with arable fields extending to the south where the two streams intersect (Grammenos and Kotsos 2002b: 15-16). The large-scale rescue excavations revealed a flat-extended settlement that was inhabited from the MN to the FN (Kotsos 2014: 316). Based on the archaeological record, the estimated total area of the settlement was approximately 112 acres, but it was not inhabited simultaneously, since the residents moved horizontally across the area (Grammenos and Kotsos 2004: 15, 17).

The settlement was established, in the MN period, between 5890-5640 BC according to radiocarbon dates (Kotsos 2014: 316-317). During that period (Stavroupoli Ia phase) the settlement extended over an area of approximately 5-6 acres. Later, between 5697-5531 BC, the Neolithic community or, at least, a part of it, built their houses some 200 m to the north (Kotsos 2014: 317). The excavations in the area between the two habitation sections uncovered only several pits, presumably used for storage. In the next habitation phase, dated to the early LN, the settlement covered much larger area, and even more so during the last phase (Stavroupoli II) dated to the end of the Late or the FN (Urem-Kotsou and Kotsos 2017: 286; Grammenos and Kotsos 2004: 16; Kotsos 2014: 317).

The houses at MN Stavroupoli were semi-subterranean, of ellipsoidal or irregular shape, with an average diameter of 3-5 m and a depth of 0,50-0,80 m (**Fig. 54**) (Kotsos 2014: 318). Pit-dwellings superstructure must have been made of perishable materials such as branches and reeds. Ovens, hearths and smaller pits, presumably used for storage or other purposes, were found outside the houses, but close to them (Grammenos and Kotsos 2004: 17-18). Pithoi found adjacent to the pit-dwellings were also used for storage purposes (**Fig. 55**). The limited presence of post holes around the pits suggests that the walls of pit-dwellings were not post-framed (Grammenos and Kotsos 2004: 18). Similar architecture is encountered in Central Macedonia in settlements of Lete I and Lete III, although they are dated earlier than their counterparts of Stavroupoli Ia phase.

The archaeobiological material indicates the reliance of Stavroupoli residents on farming. The study of the animal bones shows that goats and sheep dominated in numbers with pigs and cattle following, while dogs were represented by a smaller percentage

(Giannouli 2004: 490). The study of the archaeobotanical material identified wheat, barley, grass pea, lentils, bitter vetch, grape, figs, blackberries, and other fruits and nuts (Margariti 2004: 605-606).

B.1.17. Mesimeriani Toumba (MN)

The site was discovered in 1934 and excavated from 1992 to 2001 by the ΙΣΤ' Ephorate of Prehistoric and Classical Antiquities. It is located 3 km away from the modern village of Trilofos in Thessaloniki Prefecture (**Fig. 2, 56**). The local landscape is characterized by low hills and small streams that create a rich hydrographic network during the raining months (Grammenos and Kotsos 2000a: 16). The deposits of the Neolithic settlement were located in 2001 on the top and western slope of a *trapeza* that lies to the southwest of the Bronze Age mound (**Fig. 57**) (Grammenos and Kotsos 2000a: 152; Urem-Kotsou and Kotsos 2017: 288). The *trapeza* is defined to the north and west by a stream while a natural water spring lies at its foot. The excavated trial trenches at the prehistoric site revealed a few badly preserved pits and many sherds of the MN period, but occupation in the area continued in the LN and in historical times (Urem-Kotsou and Kotsos 2017: 288; Grammenos and Kotsos 2000a: 17). Excavation data concerning the MN period is limited and other important information related to the Neolithic settlement such as its spatial organization, size etc., still remains unknown.

B.1.18. Paliambela Kolindros (EN-MN-LN-FN)

The site of Paliambela has been excavated since 2000 by the Aristotle University in collaboration with the University of Sheffield (Kotsakis and Halstead 2002: 410). It is located on a low hill defined to the north and south by two streams, 3,5 km south of the Aliakmon's riverbed (**Fig. 2**). The excavations at the settlement revealed it combines two type of sites: tell and flat-extended. The former, covering an area of 20 acres, was located at the top of hill, while the latter extends at its periphery and is of unknown size (Kotsakis and Halstead 2007: 65). The settlement covered chronologically all the phases of the Neolithic period, from the EN to the FN, while evidence from the EBA and the Byzantine

period was also discovered (Maniatis et al. 2011: 149). Based on radiocarbon dates, the EN phase is dated from 6600 to approximately 6000 BC, and the MN from 5900 to 5500 BC (Maniatis et al. 2011: 151-153).

The excavations, covering an area of 660 m^2, were conducted in three distinct sectors, each of one corresponding to a different phase of the Neolithic period (Kotsakis and Halstead 2007: 65). The EN is represented by the remains of pits of semi-subterranean houses and a series of storage pits, which were unearthed in a small area in the north sector (Kotsakis and Halstead 2007: 66; Maniatis et al. 2011: 150). To the MN belong four free-standing rectangular structures, which were unearthed in the central sector of the tell. These had the same orientation, were constructed close to one another, and were separated by narrow paved alleys and open-air cobbled yards (Kotsakis and Halstead 2006: 91; Maniatis et al. 2011: 150). Based on the above evidence, it appears that the settlement was likely more loosely inhabited in the earliest phase, whereas in the MN it was more densely occupied (Kotsakis and Halstead 2006: 91).

The analysis of faunal remains from the EN and MN contexts shows that during the EN and MN periods domesticated animals were quite important for the economy of the Neolithic settlement. Goats and sheep dominated (EN-61%, MN-64%), pigs followed (AN-25%, MN-21,8%) while cattle were represented by a smaller percentage (AN-13,8%, MN-14%). An increase in the percentage of wild animals (AN-7,3%, MN-13,8%) during the MN has also been observed (Halstead and Isaakidou 2013: 132, Tab. 7.2).

B.1.19. Revenia Korinos (EN)

The Neolithic site of Revenia was discovered in 2001 on the occasion of the construction of a poultry unit in the area west of the modern village of Korinos, in northern Pieria (**Fig. 2**). It is located in a small valley characterized by low hills, plain and rich water sources (Besios and Adaktylou 2004: 360). The excavations from 2002 to 2004, conducted by the ΙΣΤ' Ephorate and ΙΖ' Ephorate over an area of 850 m^2, revealed a large flat-extended settlement, which must have covered an area of approximately 9,9 acres, dated to the EN period according to ceramic typology (Besios and Adaktylou 2004: 362, 364).

The habitation phase of the settlement is represented by 86 pits and a group of 28 post-

holes. From the 86 pits, 65 were located in the eastern part of the excavated site (representing probably the earliest phase of the settlement), 17 in the western part and 4 in the area between them. The pits, dug in the bedrock, were circular and oval in shape, with diameter ranging from 0,50-5,20 m and depth from 0,07-1,68 m. Rectangular pits with variability in size were also unearthed. Based on the kind and number of the finds from their interior, the pits were subdivided in three different groups: a) pits rich in pottery, located in the southeastern and northwestern parts of the site, b) pits containing merely animal bones, located in northeastern areas, c) pits with variety of finds, located in the northeastern part (Besios and Adaktylou 2004: 358).

The small and large pits, that had vertical or almost vertical walls, were interpreted as underground or semi-subterranean parts of pit-houses, as storage facilities. Typical example of a large pit that had deposits rich in pottery was a number 5, with 5,20 m diameter and 1,68 m depth, which also had a step in its interior (**Fig. 58**). The large pits were usually characterized by their considerable depth and the diversity of finds in their interior, including many sherds, animal bones, shells, and sometimes burnt pieces of clay, which may have been the remains of structures. Rectangular pits, such as pits 11 and 15, were considered as the underground parts of free-standing houses, (Besios and Adaktylou 2004: 359-360), while as a special case was considered pit 72, which yielded burnt pieces of daub from its interior, suggesting the possible existence of a structure (Besios and Adaktylou 2004: 361). Worth mentioning are also the 5 *in situ* pit burials, in which the deceased were found in contracted position without grave goods (**Fig. 59**) (Besios and Adaktylou 2004: 360-361). From the 71 post-holes discovered in the excavated area, the 28 were found in the southeastern part. According to the excavators, they probably indicated the wall foundations of a rectangular free-standing building (**Fig. 60**) (Besios and Adaktylou 2004: 362).

Large amount of animal bones belonged to sheep and goats (70,3%), pigs (17,4%), and cattle (12,3%) (Halstead and Isaakidou 2013: 132, Tab. 7.2), and along with charred seeds collected from some of the pits testify to the importance of farming, while quantities of shells, especially of the species of *Cerastoderma glaucum* show that inhabitants had also exploited local wild resources (Besios and Adaktylou 2004: 359, 362).

B.1.20. Ag. Nikolaos Ritini (EN-LN)

The site of Ag. Nikolaos was discovered near the modern village of Ritini during the work on a north Pieria aqueduct, which began in the summer 2001. The Neolithic settlement is located on a slope of a hill at the foot of the Pieria Mountains, at an altitude of 400 masl (**Fig. 2**). The excavation in 2003, which was conducted by the KZ' Ephorate of Prehistoric and Classical Antiquities, uncovered a small part of a flat-extended settlement, including a part of a house, a large pit, and parts of three trenches. The settlement is dated to the EN and perhaps the LN period, according to pottery (Besios et al. 2003: 453-454).

The house was post-framed and of rectangular shape, as the parallel row of post-holes found in its interior suggests. For its construction, a part of the slope was leveled and a floor was made of stones and sherds. In the eastern part of the dwelling, a large pit, with a depth over 4,50 m from the surface, was uncovered. The clay deposits found in its deeper layers and the irregular form of concavities on its bottom suggested that it may have been used for the extraction of clay. After the pit was filled in, two trenches were dug in the area, from which the first contained burnt clay material and the second may have been part of the first (Besios et al. 2003: 453-454).

B.2. The Early and Middle Neolithic period in Western Macedonia - The sites

The Middle Aliakmon valley

B.2.1. Servia (EN-MN)

The site of Servia was discovered in 1909 by A. Wace and M. Thompson (Wace 1914: 123) and was excavated in 1930 by W. Heurtley (Heurtley 1939: 43-56), and between 1971 and 1973 by the Greek Archaeological Service in collaboration with the British School of Athens, under the direction of K. Romiopoulou and C. Ridley (Ridley and Wardle 1979). The site is located 6 km to the north of the homonymous modern village, submerged today

30 m deep in the waters of the lake of Polyphytos in the Middle Aliakmon valley, formed in the early 70's (Ridley and Wardle 1979: 125) (**Fig. 2**). The main settlement is a low mound inhabited from the MN to the EBA period, while deposits of the EN were located approximately 500 m to the east, at the nearby site of Servia-Varytimidis, also known as Servia V (**Fig. 61**) (Ridley and Wardle 1979: 188; Burleigh et al. 1982: 277-278; Ridley et al. 2000: 10).

Even though the finds from Servia V, collected from an area of 190 m^2, were rich, the architectural remains were rather poor and consisted only of a couple of post-holes, a cobbled yard and two pits. The position of the post-holes at the southernmost part of the excavated area testified to the existence of the settlement. The cobbled yard, covering most of the excavated area and running north-south, was initially thought to be a pit, but its large size, unclear shape and content of washed down material did not support this hypothesis. Two pits, predating the courtyard, with pottery in their interior, were also unearthed in the area (Ridley and Wardle 1999: 191).

The occupation of the MN settlement is represented by the architectural remains of phases I-V (Areas F, H and D) (**Fig. 62**) (Ridley et al. 2000: 21, Tab. 2.1). Phase I (Area F) consisted of three buildings (Structures 1-3) with orientation northwest-southeast (**Fig. 63**). All structures had post-holes, foundation trenches, floors of clay or timber, with or without hearths, and yards. Only Structure 3 continued in use during Phase 2 (Area F), in which a shift in the settlement plan must have taken place, as suggested by the construction of new yards, floors and walls and/or the remake of older ones (**Fig. 64**). In Phase 3 (Areas F and H) building activity intensified. Six buildings (Structures 1-6) were unearthed, represented by earthen floors, wall foundations, post-holes from post-framed walls and the roof (**Fig. 65**). Burnt structural debris from the buildings suggests that they were destroyed by fire. Except for two structures (Structures 5 and 6), all buildings had sunken floors, cut to a lower level and often into earlier deposits, creating “basements”. This architectural innovation suggests that these structures may have been two-storey. In the following Phase 4 (Areas F, H and D), the remains of six buildings (Structures 1-6) and the ground plan of a structure (Structure 7) were identified (**Fig. 66, 67**). Remains of six buildings (Structures 1-6) consisted of parts of floors and walls represented in the form of post-holes or foundation trenches. Carbonized seeds from the interior of two buildings (Structures 2-3) suggested

their probable use as storage areas. The best preserved building (Structure 7) had a size of 8 × 3,30 m and a presumed second floor, consisting of a full-length wall, parts of walls, large posts and a part of a fallen clay floor from the upper storey (**Fig. 68**). The large amount of finds from its interior suggest everyday activities related to food preparation, storage of ceramics or manufacture of lithic tools. At the end of Phase 4, fire have destroyed the settlement, as indicated by burnt buildings. Archaeological evidence from the last MN phase, Phase V (Areas F and D), was quite fragmentary, suggesting that some buildings were not re-used, while others were most probably used only temporarily. This phase is represented by a minimum of four buildings with partially preserved clay floors and post-holes, two pits, a yard and a hearth. The most well-preserved building (Structure 1) had 8 × 3,50 m in dimensions and its ground plan and floor had survived completely. Its walls were represented by foundation trenches and post-holes with evidence of daub with imprints of reeds and chaff (**Fig. 69**) (Ridley et al. 2000: 23-44).

The archaeobotanical analysis of the material derived from the cobbled yard and a refuse-pit at EN Servia-Varytimidis site has identified two different wheat types (*Triticum monococcum*, *Triticum dicoccum*), three barley types (*Hordeum d. distichon*, *Hordeum d. var. nudum*, *Hordeum v. vulgare*), millet (*Panicum miliaceum*), green pea (*Pisum sativum*), lentil (*Lens culinare*), bitter vetch (*Vicia ervilia*), flax (*Linum usitatissimum*), houndberry (*Cornus mas*), plum (*Prunus* spp) and acorn (*Quercus* spp) (Hubbard 2000: 354). Animal bones were identified as sheep and goats (60%), followed by pigs (15%) and cattle (15%) and complemented in smaller percentages by wild fauna that includes red deers and roes (10%) (Hubbard 1999: 228).

The MN settlement produced two wheat types (*Triticum monococcum*, *Triticum dicoccum*), varieties of barley, chickling pea (*Lathyrus sativus/cicera*), lentil (*Lens culinaris*), flax (*Linum* sp.), wild grape (*Vitis vinifera* ssp. Sylvestris) and other fruits including the terebinth-type pistachio (*P. terebinthus*-T), burnt cores of either crab apple (*Pyrus malus*) or pear (*Pyrus communis* or *P. amygdaliformis*), fragmentary fruitstones of the Cornelian cherry (*Cornus mas*), shell fragments from the almond (*Prunus amygdalus*) and others (Housley 2000: 302). Finally, in the MN deposits, significant increase in pig is observed (40%), while sheep and goat decline (40%). Bones of roe deer, cattle, and red deer were also present (20%) (Hubbard 1999: 228).

B.2.2. Kranidia Kryovrysi (EN-MN)

The site of Kranidia Kryovrisi was surveyed in 1985 and excavated in 1992-1993 by the IZ' Ephorate of the Prehistoric and Classical Antiquities. It is situated to the northwest of the homonymous modern village, in the Middle Aliakmon valley, on a terrace which is seasonally exposed by the waters of the artificial lake of Polyphytos (**Fig. 2**) (Chondroyianni-Metoki 1992: 35-36). It is likely that the initial settlement was established on a natural plateau adjacent to the river (Ziota and Chondroyianni-Metoki 1993: 35). Based on the ceramic evidence the site was dated to the EN and occupied till the Byzantine times (Chondroyianni-Metoki 1992: 38-39).

The excavations revealed building materials and five pits in total, the four of which were dated to different periods of the prehistory (EN, MN, LBA) (**Fig. 70**). The size and function of the pits varied (Ziota and Chondroyianni-Metoki 1993: 35-36). The EN pit had oblong shape and was formed in the interior of a natural depression. It contained small amounts of construction material probably from floors or superstructures of buildings, animal bones and pottery. The pit from the MN was 2 m wide and had a similar elongated shape. It seems to have been purposely dug and used for rubbish disposal. It contained large amounts of pottery, animal bones, lumps of clay, floor fragments, lithic tools, a figurine and many stones, probably deriving from a paved area (Ziota and Chondroyianni-Metoki 1993: 35-36).

B.2.3. Roditis Paliambela (EN)

The site of Roditis Paliambela was found during the construction of a storehouse and was excavated in 2000-2001 by the IZ' Ephorate. The settlement forms a low mound close to the shore of the artificial lake of Polyphytos. It is located to the north end of the Middle Aliakmon valley, at an altitude of 390 masl and at a distance of 5 km from the Aliakmon river (**Fig. 2**). The Aliakmon valley and the surrounding high hills provided an ideal environment for agriculture and pastoralism. The estimated total size of the site reaches 30 acres, according to surface finds (Chondroyianni-Metoki 2002: 557-558). Radiocarbon dates place its occupation in the EN period, between 6220 and 5900 BC (Karamitrou-

Mentessidi 2014: 246).

The archaeological deposits, with a depth ranging from 0,60 to 1,50 m, consisted of architectural remains that probably belonged to three habitation phases. Three small-sized floors - two circular and one semi-circular - were found dug in the natural bedrock (**Fig. 71**). The circular pits had a diameter of 1,60-1,70 m, while the semi-circular one was preserved at 1,20 m length. All pits had post-holes at their periphery or in close proximity to them, while evidence of fire (burnt clay and ashes) was present all over the site (Chondroyianni-Metoki 2002: 558). Another circular structure with 1,40 m diameter and two rows of post-holes at its periphery was also discovered in the middle of the excavated area. According to the excavator, all these remains probably constitute out-door structures which were used for domestic activities such as the preparation of food (Chondroyianni-Metoki 2002: 569). A pit with dimensions 1,70 × 1,40 m and depth 0,50 m was also unearthed. It contained plenty of sherds, burnt soil with ashes, as well as an infant burial in flexed position located in a deep cavity in its interior. Finally, a series of post-holes and a trench, which were found in the upper layer, were considered to have been part of a circular structure which was not preserved (Chondroyianni-Metoki 2002: 559).

B.2.4. Goules Varemenoi (EN-MN)

The site was discovered in 2001 when the level of Polyphytos lake was lower providing the opportunity to the IZ' Ephorate of Prehistoric and Classical Antiquities to excavate it. It is situated on the south shore of the artificial lake, in the middle part of the Aliakmon valley, at an altitude of 280 m (**Fig. 2**). The surrounding area is characterized by large fertile fields. The settlement, heavily eroded by water of the lake, forms a mound (tell), which, based on the surface pottery, must have covered an area of about 30 acres (Chondroyianni-Metoki 2002: 562-563). On the basis of radiocarbon dates, the settlement was inhabited in the EN and the MN periods, between 6430-5670 BC and 6070-5920 BC (Karamitrou-Mentessidi 2014: 246).

Four distinct archaeological strata (A, B, C, D) were identified. Strata A and B contained remains dating to the MN, while evidence from the EN was uncovered in strata C and D. More specifically, stratum A contained the remains of a clay floor, while stratum B revealed

two rectangular post-framed structures along with eight pits, dating to the same period (MN) or to a later phase (**Fig. 72**). Both structures were characterized by a similar architecture and were destroyed by fire. The first building, with orientation from northeast to southwest, had preserved dimensions of 1,20 × 1,70 m. Its interior was marked by fragments of a clay floor, a roof, a pit and several post-holes related to a walls foundation trench. The second structure, with the same orientation, had a size of 1,20-1,40 × 2,70 m (Chondroyianni-Metoki 2002: 563-565).

Stratum C included the remains of a post-hole, a cremation burial and a timber structure (**Fig. 73, 74**). The last two were probably associated with an area - labeled as a "furnace" - which was located at a close distance. The area was characterized by large concentrations of burnt earth, charred organic materials, ashes, pieces of charcoal etc. The cremated remains of the deceased were found beneath a small pile of stones, and accompanied, among others, with pottery and charred seeds. A clay wall was related to the burial together with a burnt timber structure which was found nearby. The latter may have been part of the timbers of the pyre. Lastly, the remains from Stratum D consisted of a partially preserved clay floor and a clay structure (Chondroyianni-Metoki 2002: 565-566).

B.2.5. Kassiani Lavas Servia (EN)

The site was discovered in 1998 during surveying the area for the development of the LARCO mining company, and excavated in 2010 by the Λ' Ephorate of Prehistoric and Classical Antiquities (Chondroyianni-Metoki 2011: 81). It is located at the south end of the Middle Aliakmon valley, on the highest point of the natural passageway of Sarantaporos, extending over the plateau of a low hill with altitude 950 m (**Fig. 2, 75**). Radiocarbon dates place the site to the EN, between 6073 and 5926 BC. The settlement had a very short lifespan of approximately 100-150 years. The excavation brought to light an undisturbed archaeological deposit, 0,25 m thick, in an area of 15 m^2 (**Fig. 76**). Architectural remains of flimsy structures made of wood were unearthed, which were probably covered by a thin layer of clay.

Later, another site was discovered in the same area. It was located at a lower altitude of 682 m and dated to the same period as the above mentioned one, or a slightly later

(Chondroyianni-Metoki 2014: 339). As in the case above, similarly flimsy buildings were also discovered in this site. According to the excavator, the evidence from both settlements may indicate a seasonal use of the area, that was probably related to stock-breeding activities in the early phase of the Neolithic period (Chondroyianni-Metoki 2011: 84; 2014: 339).

The Knidi valley

B.2.6. Kremastos Knidi (EN-LN)

The site was excavated in 1993 by the IE' Ephorate of Prehistoric and Classical Antiquities. It is located about 3 km to the north-northwest of the homonymous village and 14 km to the northeast of Grevena, at an altitude of approximately 670 m (**Fig. 2, 77**). The settlement, lying within the limits of a forested area, extends on the gentle slope of a low hill, at the foot of an elongated hill ridge. The wider area is marked by woodlands and numerous streams, which create a dense hydrographic network (Toufexis 1994: 17). The site that must have an extent of approximately 2,5 acres, is heavily destroyed by a small stream crossing the area and the construction of two forest roads in its eastern part (Toufexis 1994: 23). Based on ceramic typology, the site is dated to an advanced phase of the EN, while few sherds of the LN points to a possible re-occupation of the site during that period (Toufexis 1994: 19).

The small-scale excavation revealed an extensive destruction layer related to an Early Neolithic wattle-and-daub house (trench A) and a storage pit (trench B) (**Fig. 78, 79**). In trench A, the destruction layer of the dwelling contained highly charred masses of clay and straw with wooden imprints from timber posts, branches and planks. The latter were found in a row and must have derived either from the roof or the walls of the structure. It is interesting that post-holes in the excavated area were completely absent (Toufexis 1994: 18). In trench B, the cylindrical storage pit had 0,98 m depth and 1,50 m width. It contained burnt lumps of clay, stones and plenty of pottery (Toufexis 1994: 19).

B.2.7. Matsouka Rachi Knidi (EN-MN-LN)

The rescue excavation at the site was performed in 2005 by the Λ' Ephorate of the Prehistoric and Classical Antiquities as a result of the mining activities of the GeoEllas-AMMAE clay quarry company. The settlement is located approximately 4 km to the north of the homonymous modern village, extends over the plateau of a hill with orientation north-northeast, at altitude 630 m (**Fig. 2**). As with Knidi Kremastos, the site lies in a forest, which is surrounded by fertile fields and many small streams. The opening of a forest road in the area has completely destroyed the northwest part of the site (Karamitrou-Mentessidi 2005: 544). The settlement, which must have covered an area of 1,5-2 acres, was dated by pottery to an advanced phase of the EN towards the MN with some evidence for the use of space in the LN. (Karamitrou-Mentessidi 2005: 548).

During the excavation, that covered an area of 869 m^2, two archaeological strata (stratum A and B) were identified. Stratum A included lumps of clay that come from superstructures and the floors of buildings while the architectural remains from stratum B were more abundant (**Fig. 80, 81**). Apart from many clay chunks from floors and walls that had imprints of branches, it contained two partially preserved successive floors, three shallow depressions and five small pits (**Fig. 82**). The depressions, which subdivide the settlement in separate zones, were interpreted as parts of dwellings. They were dug in the natural soil and had ellipsoidal or circular shape. Raw chunks of clay, small accumulations of stones, large amounts of lithic tools and pottery, nine figurines, as well as other materials, were collected from the interior of one ditch (**Fig. 83**). Five pits, shallow and small in size, were also opened in the natural soil and most probably were used for storage purposes (**Fig. 84**). The west part of the excavated area was considered as the central and most important section of the site. Large amounts of chipped and ground stone tools representing all stages of manufacture suggested that the area was used for tool-making activities (Karamitrou-Mentessidi 2005: 544-546, 548).

The Ptolemais-Vegoritis basin (Kitrini Limni area)

B.2.8. Mavropigi-Fylotsairi (EN)

The site of Mavropigi at Fylotsairi was excavated in 2005-2006 as a rescue project in view of the development of the Public Electricity Company's lignite mines in the area (Karamitrou-Mentessidi 2005: 511). It is situated in a flat area in the Ptolemaida basin, between the mountains of Vermion and Askiou, in the former lake basin of Kitrini Limni, approximately at 650-750 masl (**Fig. 2**) (Karamitrou-Mentessidi et al. 2013: 1; 2015: 49). The rescue excavations revealed a flat-extended settlement (**Fig. 85**), the total area of which was estimated to approximately 1,24 acres (**Fig. 86**) (Karamitrou-Mentessidi et al. 2015: 49). Based on radiocarbon dating, three distinct habitation phases (I-III) were identified: a) Phase I, between 6600-6400/6300, b) Phase II, between 6400/6300-6200, and c) Phase III, between 6200-5900 (Karamitrou-Mentessidi et al. 2015: 68).

Phase I, the earliest phase of habitation, is represented by the architectural remains of a large oval semi-subterranean pit-house (*Central Orygma*), which covered an area of 25 m^2 in the central part of the site (**Fig. 87**). The 2 m deep dwelling consisted of two rooms with a main entrance to the east. The floor of its interior was covered with clay, while a shallow circular hearth was found in the west room. In the second phase (Phase II), the size of the pit-house was doubled. Its plastered floor was partially preserved while the finds from its interior such as pottery, lithic tools, clay chunks and others, increased in amount (**Fig. 88**). In the third stratigraphic phase (Phase III) the pit-house loses its subterranean character and its size increases to approximately 100 m^2 (**Fig. 89**). Pits functionally related to the pit-house together with a series of post-holes were dug at its periphery. From many finds located in its partially preserved limestone floor, which covered an area of 15 m^2, a round fire-place and a mortar stand out. Many pieces of daub with imprints of wooden structure and lumps of clay must have derived from the walls and roofing of the house. At the end of the Phase III two child burials in flexed positions were placed in a pit that destroyed most of the southern part of the floor. The children were accompanied with many stone beads and charred seeds (Karamitrou-Mentessidi 2005: 524-526; Karamitrou-Mentessidi et al. 2015: 51-53).

Phase II, besides the pit-house mentioned above, is also represented by the structures of the *Western Orygma* in the northwest and an ellipsoidal structure in the southwest (**Fig. 86**) (Karamitrou-Mentessidi et al 2015: 58). The excavation in the southwest part of the *Western Orygma* revealed several structures of unknown size that were most probably houses, as well as many post-holes, successive floors and other clay or limestone structures (hearths, etc.) (**Fig. 90**). The ellipsoidal structure - most probably a house - covered approximately 20 m^2 and contained a stone mortar with two concavities in its upper surface (**Fig. 91**). The latter was probably used for processing seeds or tool-making (**Fig. 92**) (Karamitrou-Mentessidi 2005: 526-527).

To the third stratigraphic phase (Phase III) were attributed the remains of at least seven post-framed free-standing buildings of rectangular shape, which were located to the north and east of the *Central Orygma* (**Fig. 93**). Their dimensions ranged from 50-62 m^2 with the exception of House 7, the size of which reaches 90 m^2. They are characterized by features such as clay floors, double or four-pitched roofs, walls made of wooden posts, branches and reeds covered by clay, as well as entrances and trenches in their perimeter (**Fig. 94**). Trenches (0,30-0,50 m wide and 0,30-0,40 m deep) were most probably used as the foundations of houses walls or for the construction of wooden fences (**Fig. 95**). The presence of similar ditches or foundation channels was also attested in other areas of the settlement. Dozens of refuse pits, storage or of other use were found inside, nearby or at a distance from the dwellings, providing evidence of a complex community which engaged in different communal activities during the last phase of the settlement (Karamitrou-Mentessidi 2005: 527). Noteworthy was also the discovery of 18 pit-inhumations inside the limits of the settlement (**Fig. 86**). They were all dated to the last phase of the settlement (Papathanasiou and Richards 2011: 259) and yielded well-preserved skeletal remains belonging to adults, sub-adults and infants in flexed positions. In some burials the dead were accompanied with charred seeds of wheat, lithic and bone tools (**Fig. 96**) (Karamitrou-Mentessidi et al. 2015: 56-57).

The analysis of the rather poor archaeobotanical material ascertained the presence of domesticated species, such as einkorn, emmer, new glume wheat type, barley and lentils, as well as wild vegetation represented by seeds (Valamoti 2011: 521). From the animal bones sheep and goats, followed by pigs and cattle, and dogs in far lower percentages were

identified. The wild fauna is represented by aurochs, boars, foxes, hares and birds, while few bones were attributed to bear, wolf, wild cat, badger, marten, weasel and hedgehog (Karamitrou-Mentessidi et al. 2015: 61).

B.2.10. Souloukia Pontokomi (EN-MN)

The site of Souloukia Pontokomi was discovered during works carried out by the Public Power Corporation Company (DEI) and excavated in 2010 by the Λ' Ephorate of Prehistoric and Classical Antiquities (Karamitrou-Mentessidi et al. 2010: 40). It is located in the semi-mountainous area, in the basin of Kitrini Limni, at an altitude of approximately 662 m (**Fig. 2, 97**) (Karamitrou-Mentessidi 2014: 235, Tab. Ia). The excavations that were conducted on a low mound, covering an area of 600 m^2, revealed one ditch and 21 pits (**Fig. 98**) (Karamitrou-Mentessidi et al. 2010: 41, 52). Based on the archaeological evidence, the site was dated to the EN and MN periods (Karamitrou-Mentessidi 2014: 245).

The ditch with orientation from west to east-southeast had dimensions 14,60 × 2,40 m and depth ranging from 0,30-1,40 m (**Fig. 99**). From its interior were collected large amounts of pottery, lithic and bone tools, figurines, animal bones, building material, as well as burnt residues and lumps of clay. Two pits (11 and 12) were also uncovered in the east-southeast part of the ditch (**Fig. 100**). To the south of the ditch and at 2 m distance, a partially preserved clay feature - most probably a hearth - with dimensions 0,80 × 0,15-0,30 m was unearthed (Karamitrou-Mentessidi 2010: 41, 43).

From 21 pits located in the area, three groups were identified: a) 8 pits (1-8) in the northwest, b) 6 pits (9-14) around the ditch, and c) 7 pits (15-21) in the southeast (**Fig. 101**). Their size and shape varied: 12 pits were circular with diameter ranging from 0,75-1,55 m, 5 pits were irregularly circular with size ranging from 0,80 × 0,50-1,25 × 1,10 m and 4 pits were ellipsoidal. Their depth ranged from 0,60-2,18 m, their walls were slightly converging while their bottom was flat with the exception of 5 pits. The majority of the pits contained pottery, few lithic tools, figurines, animal bones and other materials (Karamitrou-Mentessidi 2010: 43-44).

B.2.11. Vrisi Pontokomi (EN-MN)

The Neolithic site of Vrisi Pontokomi was excavated in 2001-2002 by the Λ' Ephorate of Prehistoric and Classical Antiquities during construction works on a provincial road (Karamitrou-Mentessidi 2014: 234, 237). It is located in the semi-mountainous area that surrounds the basin of Kitrini Limni, at an altitude of approximately 736 m (**Fig. 2, 102**) (Karamitrou-Mentessidi 2014: 235, Tab. Ia). The rescue excavations at Vrisi revealed deposits of the EN and MN periods (Karamitrou-Mentessidi 2014: 244), while radiocarbon dating placed the site between 6200 and 6030 BC (Karamitrou-Mentessidi 2014: 244, Tab. III). However, it is not clear whether the site belongs to a low mound or a flat-extended type settlement (Karamitrou-Mentessidi 2014: 244).

The excavations revealed architectural remains comprised of lumps of clay mixed with straw, layers of small stones, numerous pits containing large amounts of pottery, and three simple pit-burials belonging to two adults and one sub-adult (**Fig. 103**) (Karamitrou-Mentessidi 2000: 626; Papathanasiou and Richards 2011: 259-260). The palaeodietary study of skeletons from the settlement of Vrisi Pontokomi, based on the analysis of stable carbon and nitrogen isotopes from bone collagen, revealed that the inhabitants relied on a mixed diet consisting of C3 plants - probably wheat, barley, legumes and fruits - as well as animals and dairy products, similar to the inhabitants of Mavropigi and Xirolimni, (Papathanasiou and Richards 2011: 266).

B.2.12. Porta/Portes Xirolimni (EN)

The site of Porta (or Portes) Xirolimni was excavated in 1998-1999 by the Λ' Ephorate of Prehistoric and Classical Antiquities on the occasion of the planned construction works of the Egnatia highway (Karamitrou-Mentessidi 1999: 338). It is situated in an almost flat plateau to the northwest of the foothills of Mt Vourinos (**Fig. 2, 104**) (Karamitrou-Mentessidi 1998: 469). The excavations revealed a rather flat-extended settlement that covered an area of approximately 5 acres (Karamitrou-Mentessidi 1998: 464, 470). On the basis of radiocarbon dating, the site was dated to the EN period, between 6210 and 6030 BC (Karamitrou-Mentessidi 2014: 244, Tab. III).

The architectural remains of the settlement were located in a destruction layer which extended over a wide area in the west part of the excavated area (**Fig. 105**). These included a plenty of building materials such as lumps of clay that belonged to walls of post-framed small dwellings (**Fig. 106**). They consisted of mudbricks or piled clay, floors of compacted clay and roofs of straw and reeds covered with clay. Some of them had stone foundations. Clear evidence of fire, along with the vessels found abandoned in the area, suggest that the settlement was abandoned in a hurry when caught the fire (**Fig. 107**) (Karamitrou-Mentessidi 2009: 112). Noteworthy is also the discovery of 14 pit-burials without grave goods inside the limits of the settlement (Papathanasiou and Richards 2011: 259). As mentioned above (Section 5.2.6), the analysis of the skeletal remains indicates that the population of the settlement relied on farming (Papathanasiou and Richards 2011: 266).

The Florina basin

B.2.13. Ambelia Ornithones Filotas (EN-MN)

The site at Ambelia Ornithones was discovered in 1995 during construction works along the new Florina-Ptolemaida road, 1,5 km to the southeast from the modern village of Filotas (**Fig. 2**). The rescue excavations that followed in 1996-1997 revealed remains dating from the prehistoric times to the Byzantine period. The Neolithic settlement was located in the northwestern part of the excavated area, in a depression; its size remains unknown (**Fig. 108**). According to pottery, it is dated to the EN and MN period (Ziota and Moschakis 1999: 43-46).

The depression included a partly preserved floor and scant remains of structures. The floor consisted of two successive clay layers covering a substratum made of pebbles, while the few badly-preserved remains probably come from stone and clay structures. The depression may have been used initially as a residential space but the evidence was not conclusive. However, large amounts of clay, parts of clay structures, animal bones, pottery and other material recovered from the upper layers of its interior ascertained its final use as a refuse pit (Ziota and Moschakis 1999: 44).

Kastoria basin

B.2.15. Avgi (EN-MN-LN)

The Neolithic settlement of Avgi in Kastoria was discovered and excavated from 2002 by the IZ' Ephorate of Prehistoric and Classical Antiquities under the direction of G. Stratouli and with the collaboration of an interdisciplinary team of researchers (Stratouli 2007: 1). The site is situated in a mountainous terrain of an altitude of 740 m, in close proximity to the modern village of Avgi (0,5 km) and the town of Argos Orestiko (7 km to the east) (**Fig. 2, 109**). The settlement lies on the gentle slopes of a terrace, which was flanked in its northern part by a stream. The archaeological deposits along the southern part of the terrace were entirely eroded by a stream. The settlement belongs to the flat-extended type of sites, covering an area of 12 acres, some 2000 m^2 of which were excavated between 2002 and 2008 (Stratouli et. al. 2010: 96). On the basis of the available evidence, the site was established in the MN (5700-5300) and inhabited during the LN I and II (5300-4500) periods, but perhaps later on too, with the earliest use of the site, however, dating to 5650 BC. Two distinct phases of occupation are reported: Avgi I, dating to the second half of the 6th millennium (MN and LN I), and Avgi II dating to the 5th millennium (LN II) (Stratouli et. al. 2010: 97).

Avgi I (5650-5000/4900 BC), the earliest phase of occupation, consists of extensive and solid destruction layers, that include remains of at least six buildings, which were destroyed by fire, leaving remnants of clay and wood construction materials, mud bricks, wall plasters and post holes (**Fig. 110, 111**) (Stratouli et. al. 2010: 97). These were probably two-storey buildings of rectangular shape, covering an area of 50-70 m^2, with orientation east-west. A variety of organic, inorganic and other micro-materials was collected, including burnt bones, ashes from thermal structures, and carbonized seeds from grains and legumes (Stratouli 2018: 115). The large open areas between the buildings were used for food preparation, consumption and tool-making as the discovery of thermal structures, including hearths and ovens, tools and other small finds indicate (Stratouli and Bekiaris 2008: 2). The most thoroughly excavated buildings of Avgi I are Building 2a and 5 in the "west sector" of the excavations.

Building 2a is located in the "Area 2" (**Fig. 112**) and is dated to the beginning of Avgi I. The building was presumably rectangular in shape with an orientation from east to west, covering an area of approximately 65-70 m^2 (Stratouli and Bekiaris 2008: 5). The walls were constructed in "wattle-and-daub" technique, as the imprints of wooden elements in clay indicate. The thin black layer of 0,50-1,00 cm thickness, found bellow the remains of the building, is described as a burnt floor bearing remnants of its use. The partially preserved floor was most probably constructed of clay (Stratouli and Bekiaris 2008: 5). The number of small finds, as it happens in all the buildings of Avgi I, was limited. However, rich archaeobotanical material coming from the burnt floor indicate the presence mainly of emmer wheat and vetch. The presence of both agricultural products and the relevant tool equipment (mortars) strongly indicate that daily food preparation and consumption activities took place both outside and inside the household area (Stratouli and Bekiaris 2008: 6).

Building 5 is located to the southeast of Building 2a in the "west sector" of the site (**Fig. 112**). As it happens with all the buildings of Avgi I, the collapsed and burnt construction material of the structure was densely concentrated in place. Its orientation from east to west followed the example of the other buildings of the same phase, while its shape was probably rectangular (Stratouli and Bekiaris 2008: 5). Among the agricultural products discovered in Building 5, noteworthy was the dominant presence of einkorn and emmer wheat. Very few small finds were unearthed from the structure (Stratouli and Bekiaris 2008: 6).

C. Chapter 3: Discussion

After having presented in detail all the available evidence related to the prehistoric settlements and dwellings of Central and Western Macedonia dated to the Early and Middle Neolithic period, several issues relevant to the main research questions posed by the study need to be addressed. First, is the available archaeological data sufficient to allow us to draw safe conclusions in relation to the habitation patterns and the socioeconomic organization of the Early and Middle Neolithic farming communities in the region? And if so, what can be said about the settlement and dwelling layout and type attested in the context of the above mentioned regional and chronological framework, a period covering more than one thousand years (6.600 BC – 5.500 BC)? Is there a marked *uniformity* and/or *variability* in the above mentioned categories of archaeological evidence in the two areas under study? Moreover, is there an apparent *continuity* or *discontinuity* in the use of these different settlement and house-types? And finally, what do these patterns in settlement layout and architecture may indicate for communal organization and life in the course of the Early and Middle Neolithic period in Macedonia? How archaeology can comment on these tantalizing issues of research?

Concerning the type of settlements, the results of the present study which has examined a total of 34 settlements from Central and Western Macedonia dated to the Early and Middle Neolithic period (**Fig. 2**), have reached the following conclusions. From the 34 sites, the 20 of them, i.e., the majority of the settlements, come from the geographical regions of Central Macedonia (the Langadas basin and the Thessaloniki plain), while the remaining 14 settlements come from the areas of Western Macedonia (the Middle Aliakmon valley, the Knidi valley, the Ptolemais-Vegortis/Kitrini Limni area and the Florina and Kastoria basins) (**Fig. 1**). In Central Macedonia, from the 20 sites located and excavated, 15 are considered as flat settlements (Lete I, Lete III, Mikri Volvi, Koroneia, Axos A, Sosandra Aridaia, Komvos Apsalos, Apsalos Grammi, Drosia, Thessaloniki International Fair, Thermi B, Vasilika C, Stavroupoli, Revenia, Ag. Nikolaos Ritini), two are mounds (Nea Nikomedeia, Giannitsa B), one combines both settlement types (Paliambela Kolindros), while two have not yet been classified (Evagelismos, Mesimeriani Toumba) (**Tab. 3**). On the other hand, from the 14 sites excavated in Western Macedonia, four belong to the tell

type of sites (Servia, Roditis Paliambela, Goules Varemenoi and Souloukia Pontokomi), two are flat sites (Mavropigi-Fylotsairi and Avgi), two are possible flat-extended (Kremastos Knidi and Matsouka Rachi Knidi), one is almost flat-extended (Porta/Portes Xirolimni), two may have been seasonal settlements (Kassiani Lavas Servia), while three are still of undiagnosed type (Kranidia Kryovrisi, Ampelia Ornithones Filotas, Vrisi Pontokomi) **(Tab. 4)**.

The available archaeological evidence shows that in Central and Western Macedonia both types of settlement, flat and mounds (tells), were present already from the beginning of the EN (e.g., Revenia Korinos, Mavropigi Fylotsairi, Nea Nikomedeia, Paliambela Kolindros) and throughout the EN and MN periods. A closer look at the data suggests, however, that the majority of the settlements in Central Macedonia belong to the flat-extended type, while tells are very rare. Different is the picture of the settlement pattern in the EN and MN of Western Macedonia where both types seem to have been almost equally represented in the region during these chronological periods although it should be stressed that in this region equal number of settlements are not classified, while two appears to be seasonal. Regardless of this difference, which could be the result of the limitations of the available archaeological data, in Western Macedonia, during the Early and Middle Neolithic, a greater variety of the settlement types could be observed. In addition to the settlements that are not easily attributed to one of the two types (Porta/Portes Xirolimni), there are also non-permanent settlements that look as seasonal camps, according to architectural and other characteristics (two sites at Kassiani Lavas Servia). In Central Macedonia, however, settlement that combines both type of sites, that of tell and flat-extended, is recorded (Paliambela Kolindros).

Concerning the architecture and the type of dwellings, in both Central and Western Macedonia, it seems that both subterranean/semi-subterranean structures (pit-houses) and above-ground houses occur in EN and MN settlements. Pit-houses, either in their simple (e.g., Lete I,) or complex form (e.g. Lete I, Lete III, Stavroupoli Ia, Mavropigi-Fylotsairi), were of circular or elliptical shape (e.g. Lete I, Lete III, Paliambela Kolindros, Stavroupoli Ia). They usually had floors made of clay (e.g. Lete I, Mavropigi-Fylotsairi, Stavroupoli Ia) with their superstructures constructed of branches and other perishable materials (e.g. Stavroupoli Ia). Occasionally they had post-holes in their periphery (e.g. Mavropigi-

Fylotsairi) or were associated with pits which were found close to them (e.g. Lete I, Mavropigi-Fylotsairi). Conversely, above-ground buildings were of rectangular or square shape (e.g. Mavropigi-Fylotsairi, Axos A, Sosandra Aridaia, Ag. Nikolaos Ritini, Mikri Volvi), or of ellipsoidal (e.g. Mavropigi-Fylotsairi, Giannitsa B) and had one or more rooms (e.g. Nea Nikomedeia, Axos A, Sosandra Aridaia). Their floors were made of clay (e.g. Nea Nikomedeia, Axos A, Goules Varemenoi, Mavropigi-Fylotsairi, Porta/Portes Xirolimni, Avgi), clay mixed with pebbles (e.g. Nea Nikomedeia) or even timber (Servia). In some cases, the floors were covered by hard limestone material (Giannitsa B) or were lying on a substratum constructed of small pieces of limestone (Axos A). The walls of above-ground buildings were usually made of timber posts, branches and reeds, coated with clay (e.g. Nea Nikomedeia, Mavropigi-Fylotsairi) or were constructed in wattle-and-daub technique (e.g. Mikri Volvi, Kremastos Knidi, Avgi), while the use of mudbricks (Apsalos Grammi, Avgi) or of split-poles and planks (Sosandra Aridaia) is also attested. Their walls may have had foundation trenches (Giannitsa B, Axos A, Servia, Goules Varemenoi, Mavropigi-Fylotsairi), or were more often without them (e.g. Nea Nikomedeia, Sosandra Aridaia), while stone bases have also been reported (Porta/Portes Xirolimni). Their roofs were either double pitched (Axos A, Sosandra Aridaia) or four pitched (Giannitsa B, Mavropigi Fylotsairi), while in some cases (only in Western Macedonia), there are indications for the existence of an upper storey (Servia, Avgi). Sometimes the above-ground buildings had outdoor auxiliary structures such as pits, found close to them (Mavropigi-Fylotsairi), in yards (Servia) or alleys and yards (Paliambela Kolindros). In few cases pit-houses and above-ground buildings are found in the same settlement (Mavropigi-Fylotsairi, Paliambela Kolindros, Revenia Korinos, Mikri Volvi), but overall the available evidence indicates that the above-ground structures were preferred in the case of tell settlements in both Central and Western Macedonia (Nea Nikomedeia, Giannitsa B, Servia, Goules Varemenoi), while pit-dwellings seem to have been associated with the flat-extended settlements (Revenia Korinos, Koroneia, Lete I, Lete II, Stavroupoli Ia, Matsouka Rachi). Lastly, apart from pit-houses and above-ground dwellings, light flimsy structures made of perishable materials, suggesting a less permanent use, have also been attested (Kassiani Lavas Servia).

Summarizing the evidence, despite the presence of both main type of sites and both main type of dwellings in Western and in Central Macedonia it appears that tells and above-

ground houses were more often encountered in the former region, while flat settlements and pit-houses in the latter. Furthermore, it appears that this slight variety between two regions in the EN and MN periods is followed by variety in the size, building materials and techniques used in the construction of dwellings, and in the size and location of the settlements (see Chapter 2).

Distribution of the sites in Central and Western Macedonia during the MN (e.g. Apsalos Grammi, Evagelismos, Servia) follows the pattern already observed in the EN (e.g. Axos A, Lete III, Kremastos Knidi), that is, a location of the sites in varied environments, and not in a particular landscape (**Fig. 2**). More precisely, the settled landscape includes coastal zones, plains, hills and the adjacent valleys, where water resources (rivers, streams, springs, lakes or marshes) and fertile soils offered ideal conditions for the practice of agriculture and pastoralism and, for that reason, these factors appear to have been significant for the selection of the settlement's location. However, whether environmental features were the main factor for the establishment of settlements or diverse social factors (demography, social relations, exchange networks etc.) had also played a decisive role in the process of selection still remains unclear.

In any case, as the archaeobotanical and faunal evidence from the sites examined in this study suggests (Lete I, Nea Nikomedeia, Giannitsa B, Sosandra Aridaia, Apsalos Grammi, Stavroupoli Ia, Paliambela Kolindros, Revenia Korinos, Servia, Mavropigi-Fylotsairi, Vrisi Pontokomi, Porta/Portes Xirolimni), the settlements from both Central and Western Macedonia appear to have been autonomous already from the beginning of the EN and throughout the periods discussed here. Residents of each settlement appear to have relied primarily on the exploitation of their local environment, have kept all four main domesticates (sheep, goat, cattle, pig), and have occasionally hunted wild animal species, while they have cultivated a variety of cereals and legumes and gathered wild plants for consumption and other purposes (see Chapters 1 and 2).

It should be noticed, however, that the majority of the settlements have been only partially investigated and the study of their archaeological material in many cases is still in progress. For that reason, the available archaeological evidence concerning the intra-site organization of the settlements in both geographical regions during the EN and MN is far from being sufficient to provide an entirely clear picture for the settlement pattern. Future

excavations and further research is expected to improve our knowledge and to allow us to draw more firm conclusions on the research questions set in this study.

D. Abbreviations

BC: Before Christ

BP: Before Present

cal.: Calibrated

cm: centimeter

EBA: Early Bronze Age

Ed./ eds.: Editor/ editors

e.g.: exempli gratia

EN: Early Neolithic

etc.: et cetera

Fig.: Figure

km: kilometer

LBA: Late Bronze Age

LN: Late Neolithic

m: meter

masl: meters above sea level

MN: Middle Neolithic

Mt: Mountain

Tab.: Table

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F. Figures

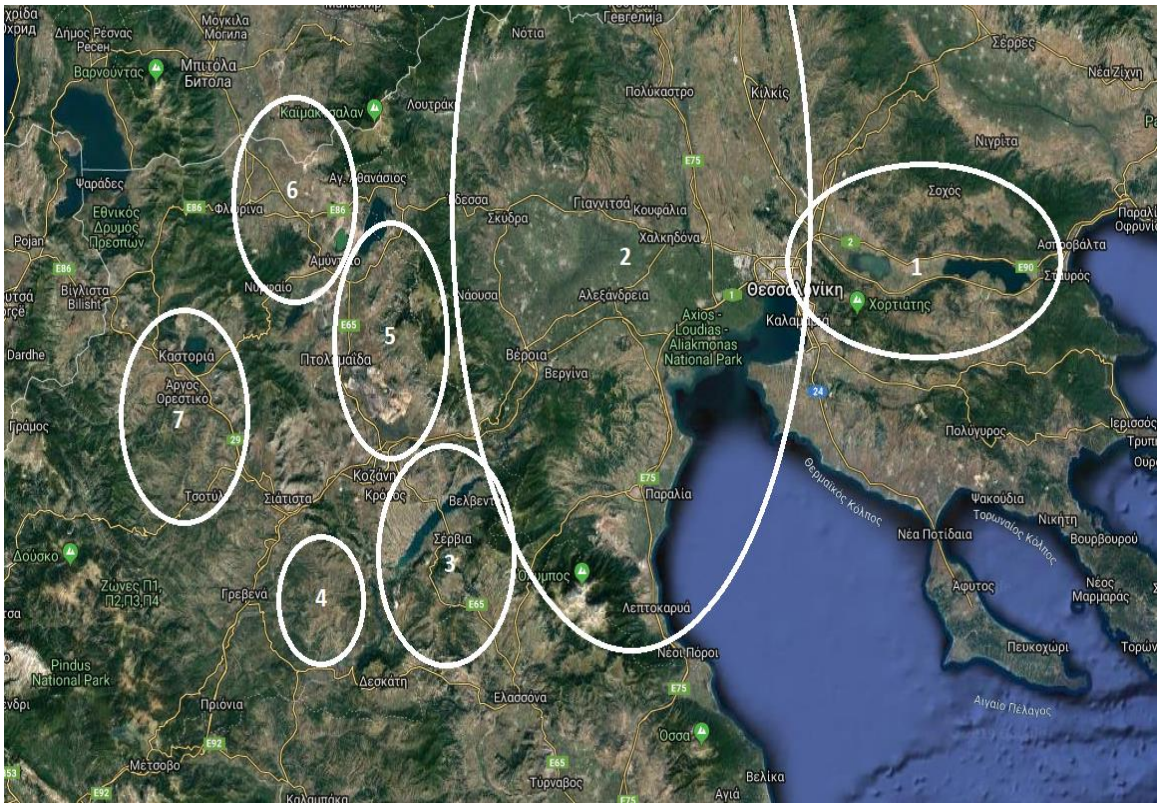

Fig. 1. The geographical regions of Central and Western Macedonia: 1. the Langadas basin, 2. the Thessaloniki plain, 3. the Middle Aliakmon valley, 4. the Knidi valley, 5. the Ptolemais-Vegoritis basin (Kitrini Limni area), 6. the Florina basin, 7. the Kastoria basin.

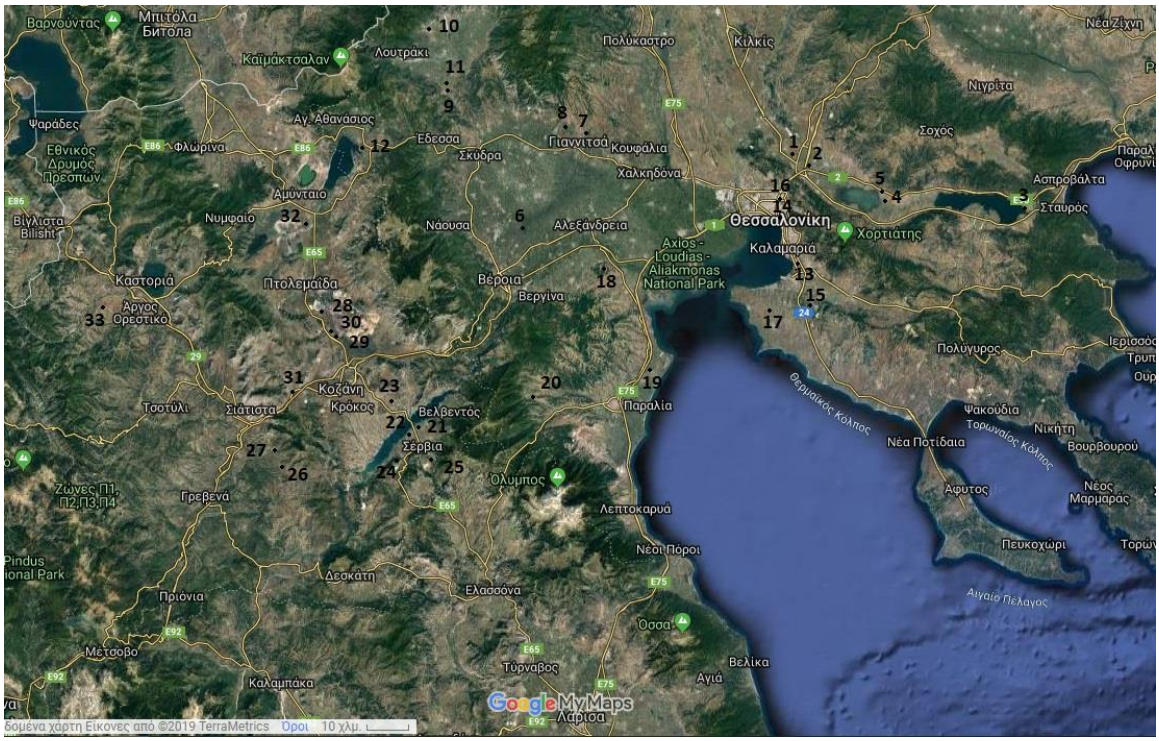

Fig. 2. EN and MN settlements in Central and Western Macedonia presented in the text

1. Lete I (EN-MN)	12. Drosia (EN-MN)	23. Roditis Paliambela (EN)
2. Lete III (EN)	13. Thermi B (MN-LN)	24. Goules Varemenoi (EN-MN)
3. Mikri Volvi (EN-MN)	14. Thessaloniki International Fair (MN)	25. Kassiani Lavas Servia (EN)
4. Koroneia (EN-FN)	15. Vasilika C (MN-LN-FN)	26. Kremastos Knidi (EN-LN)
5. Evagelismos (MN)	16. Stavroupoli (MN-LN-FN)	27. Matsouka Rachi Knidi (EN-MN-LN)
6. Nea Nikomedeia (EN-LN)	17. Mesimeriani Toumba (MN)	28. Mavropigi-Fylotsairi (EN)
7. Giannitsa B (EN-MN-LN)	18. Paliambela Kolindros (EN-MN-LN-FN)	29. Souloukia Pontokomi (EN-MN)
8. Axos A (EN)	19. Revenia Korinos (EN)	30. Vrisi Pontokomi (EN-MN)
9. Komvos Apsalos (EN)	20. Ag. Nikolaos Ritini (EN-LN)	31. Porta/Portes Xirolimni (EN)
10. Sosandra Aridaia (EN-LN)	21. Servia (EN-MN)	32. Ampelia Ornithones Filotas (EN-MN)
11. Apsalos Grammi (MN)	22. Kranidia Kryovrisi (EN-MN)	33. Avgi (EN-MN-FN)

Fig. 3. Lete I. The encircled area shows the location of site A (Pappa and Tzanavari 2010: 208)

Fig. 4. Lete I. Site A. Pit-house (Pappa and Tzanavari 2010: 210)

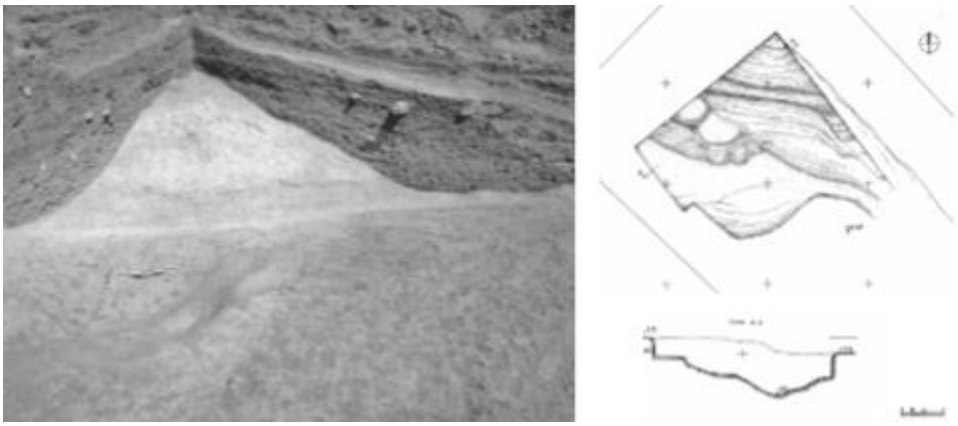

Fig. 5. Lete I. Part of a ditch uncovered at Site A. (Pappa and Tzanavari 2010: 209)

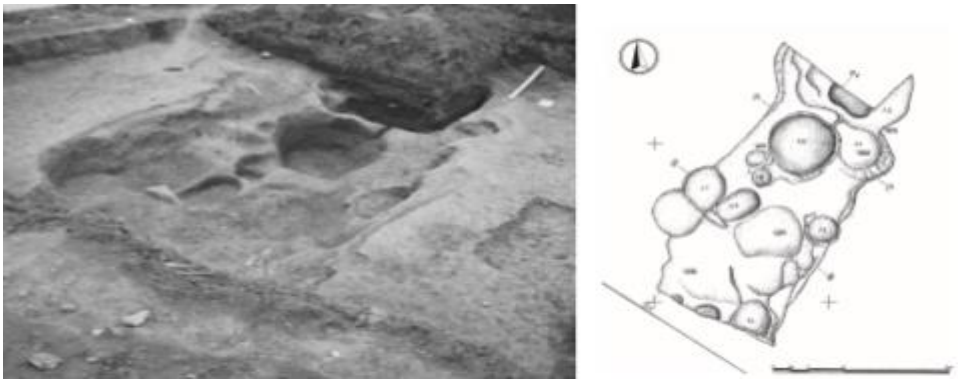

Fig. 6. Lete I. Ditch at Site A. (Pappa and Tzanavari 2010: 209)

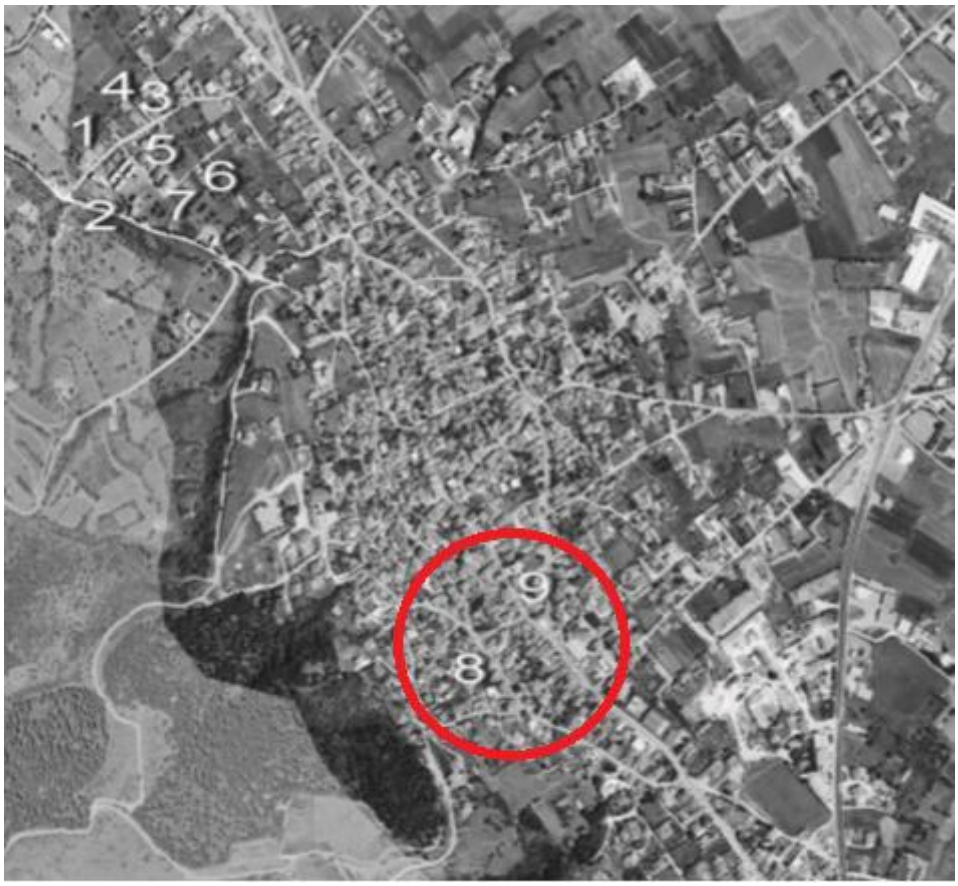

Fig. 7. Lete I. The encircled area shows the location of Site B (Pappa and Tzanavari 2010: 208)

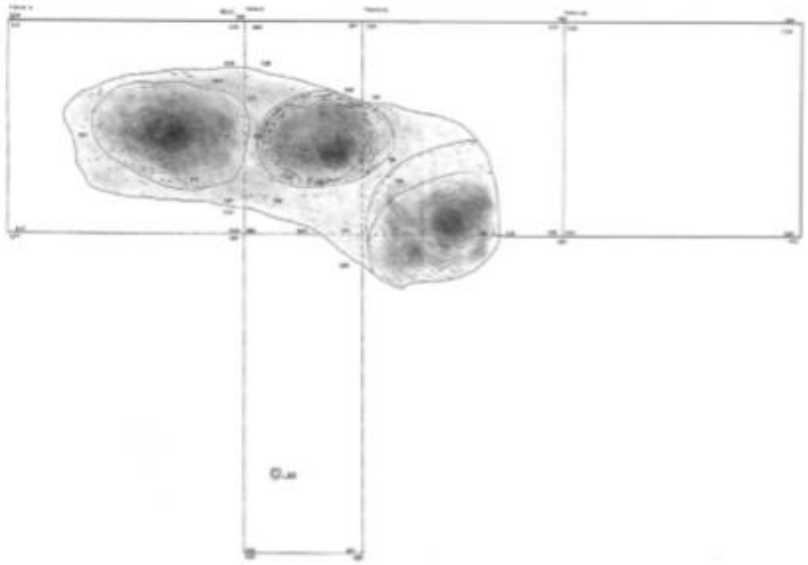

Fig. 8. Lete III. Plan of pit 1 (Tzanavari et al. 2002: 212)

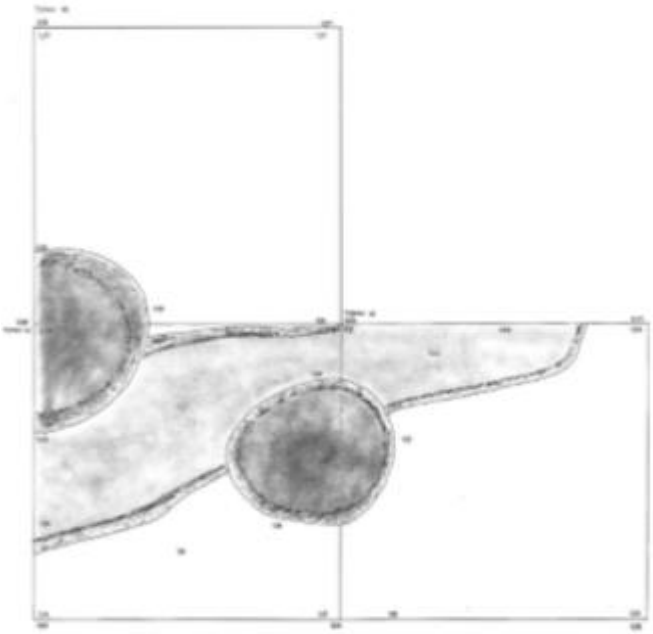

Fig. 9. Lete III. Plan of pit 2 and 3 (Tzanavari et al. 2002: 213)

Fig. 10. Mikri Volvi. Location of the site (Kotsos and Urem-Kotsou 2006: 119)

Fig. 11. Mikri Volvi. Series of pits outside the inhabited area (Kotsos and Urem-Kotsou 2006: 119)

Fig. 12. Mikri Volvi. The remains of an above-ground house (Lioutas and Kotsos 2006: 246)

Fig. 13. Mikri Volvi. Hearth in house B (Kotsos and Urem-Kotsou 2006: 119)

Fig. 14. Mikri Volvi. Hearth in house A (Kotsos and Urem-Kotsou 2006: 119)

Fig. 15. Koroneia. Pit-house and three storage pits (Kotsos et al. 2015)

Fig. 16. Koroneia. Preserved part of an oven (Kotsos et al. 2015)

Fig. 17. Koroneia. Storage pit with two post-holes at the bottom (Kotsos et al. 2015)

Fig. 18. Koroneia. Well 2 (Kotsos et al. 2015)

Fig. 19. Koroneia. View of the ditch from the south with burials found within the ditch (Kotsos et al. 2015)

Fig. 20. Evagelismos. The excavation of the site (Pappa and Adaktylou 2000: 119)

Fig. 21. Evagelismos. Pit 10 (Pappa and Adaktylou 2000: 119)

Fig. 22. Evagelismos. Pit 12 (Pappa and Adaktylou 2000: 119)

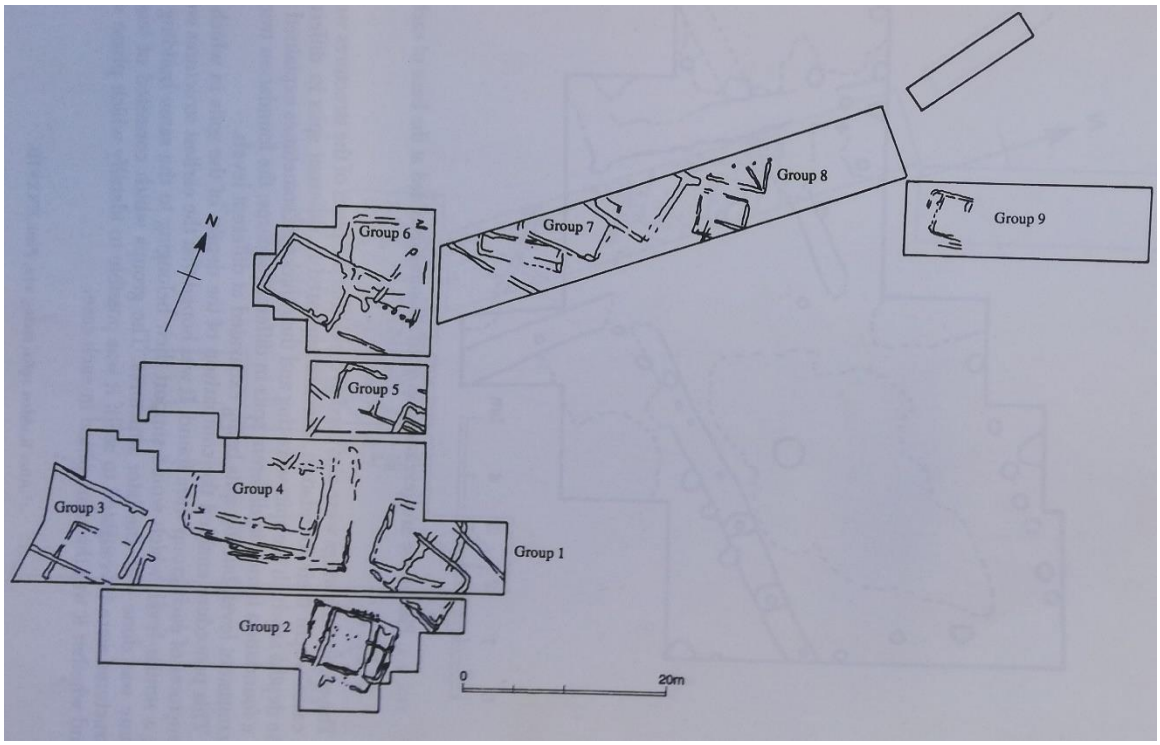

Fig. 23. Nea Nikomedeia. Plan showing the groups of structures (Pyke and Yiounni 1996: 11)

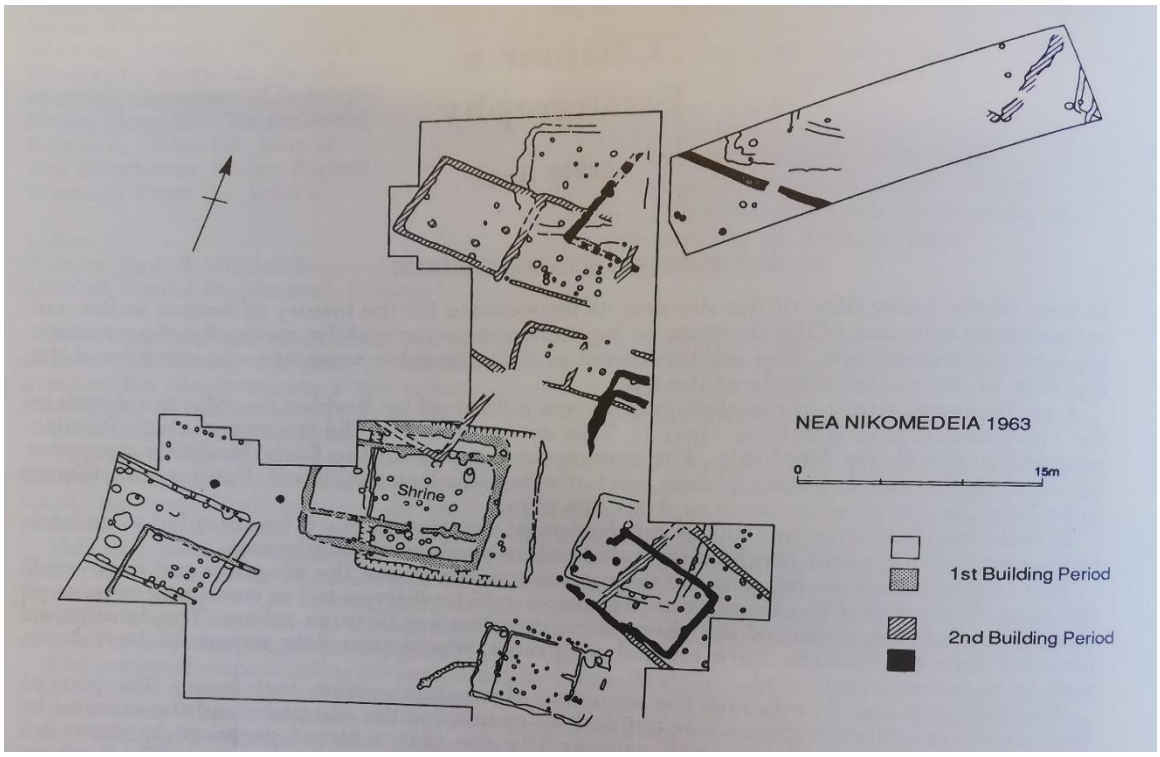

Fig. 24. Nea Nikomedeia. Plan of the "shrine" (Pyke and Yiounni 1996: 10)

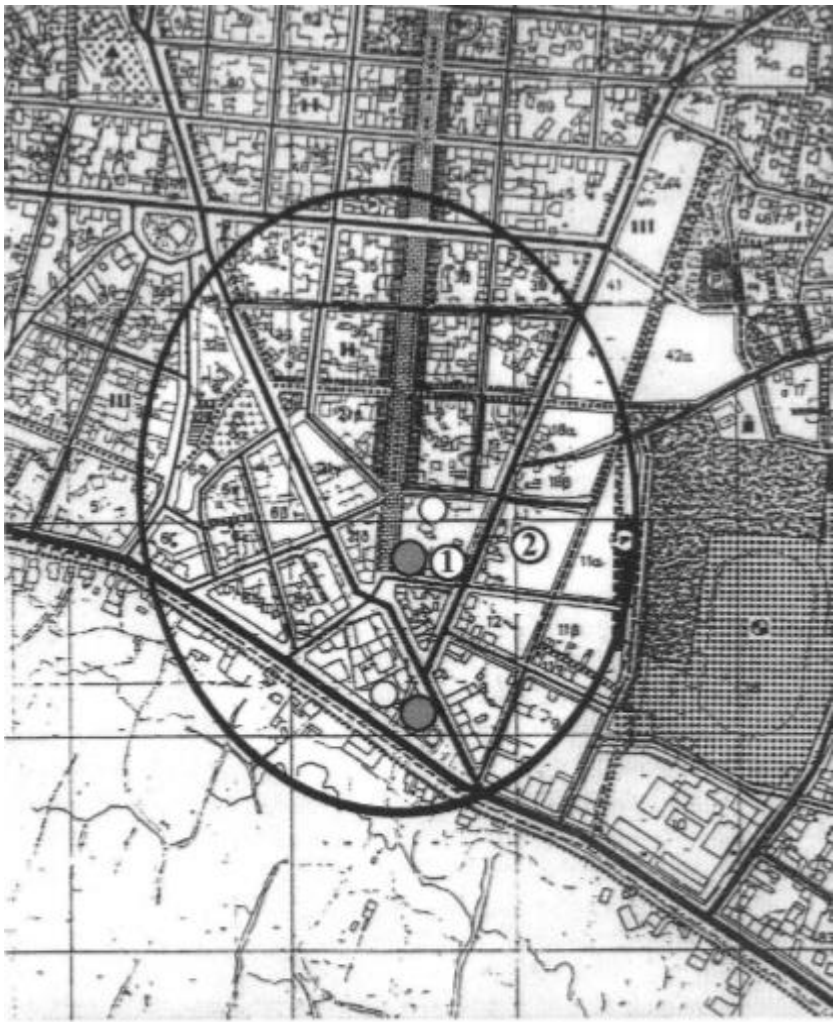

Fig. 24. Giannitsa B. Location and size of the site (Chrysostomou 2000: 493)

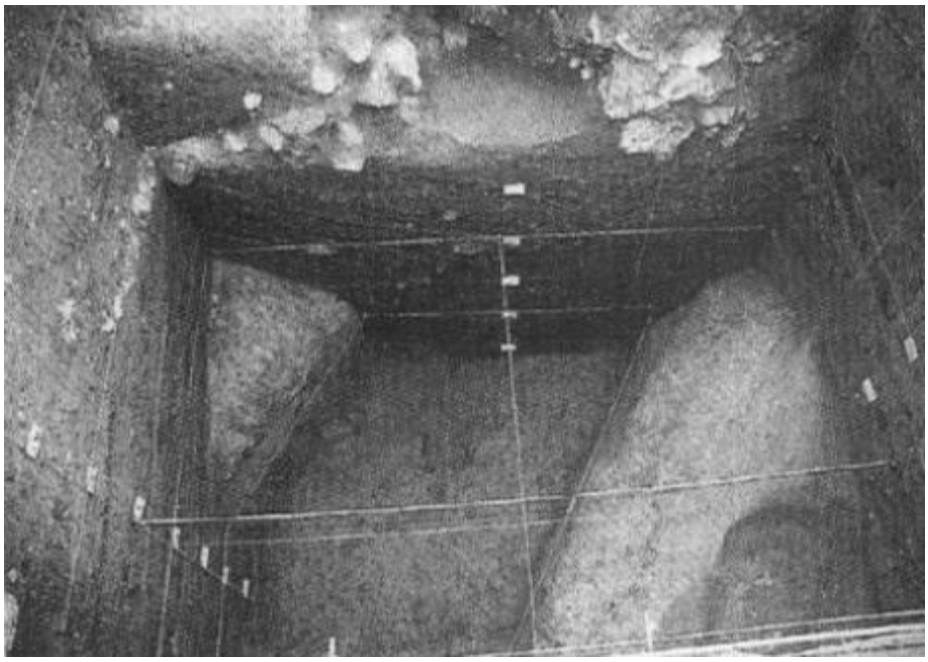

Fig. 25. Giannitsa B. Part of the ditch from the excavations of 2000 (Chrysostomou 2000: 500)

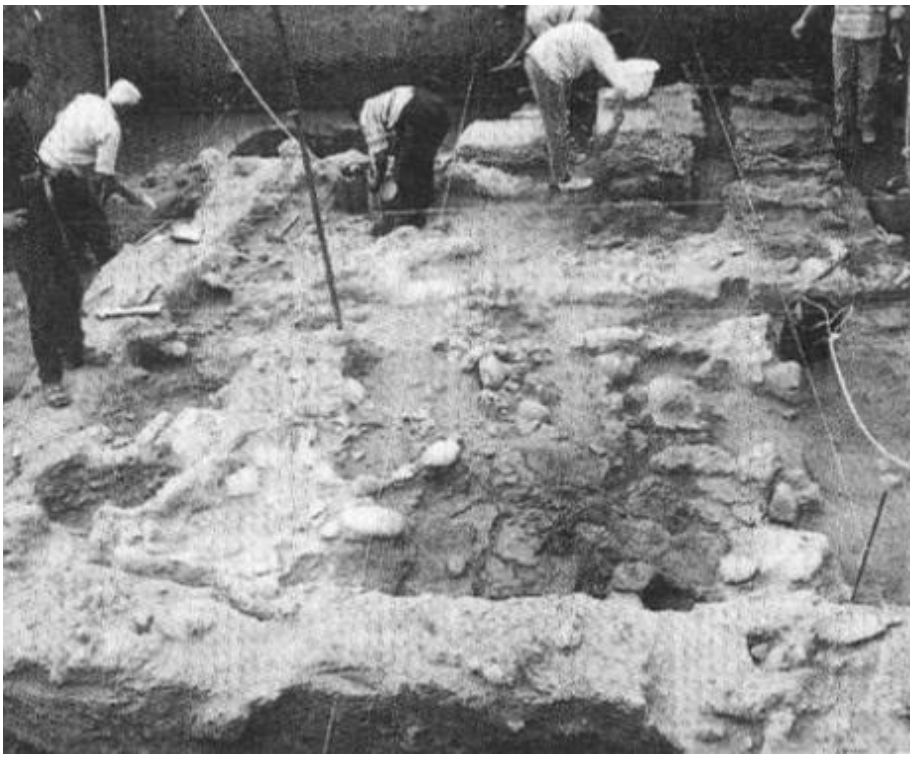

Fig. 26. Giannitsa B. The central building of the complex of the second EN habitation phase (Chrysostomou 2001: 500)

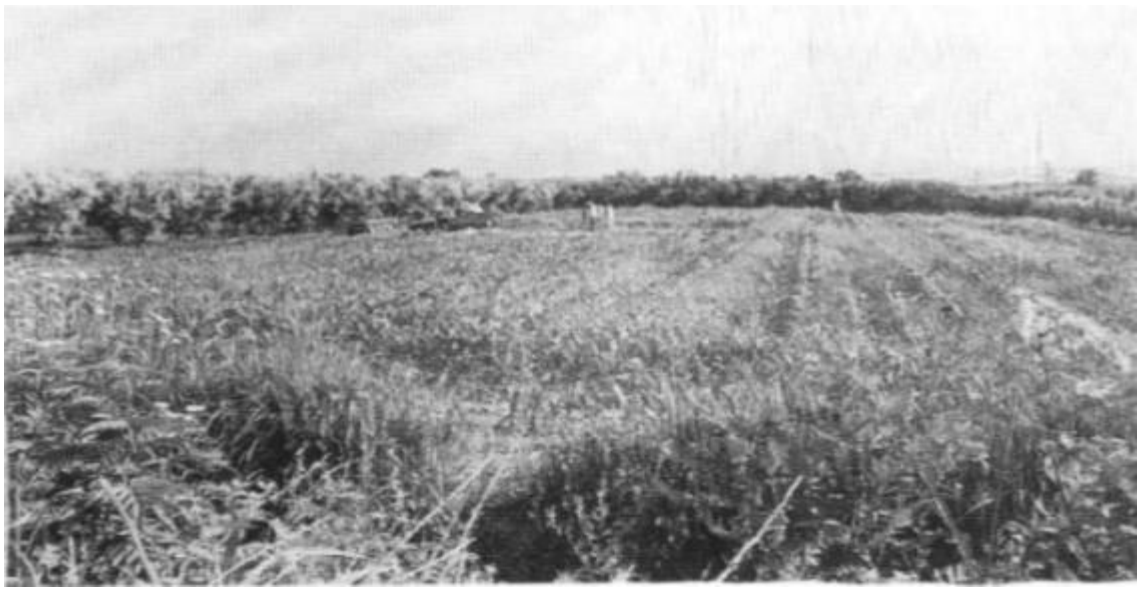

Fig. 28. Axos A. Location of the site (Chrysostomou 1996: 171)

Fig. 29. Axos A. First habitation phase (Chrysostomou 1996: 171)

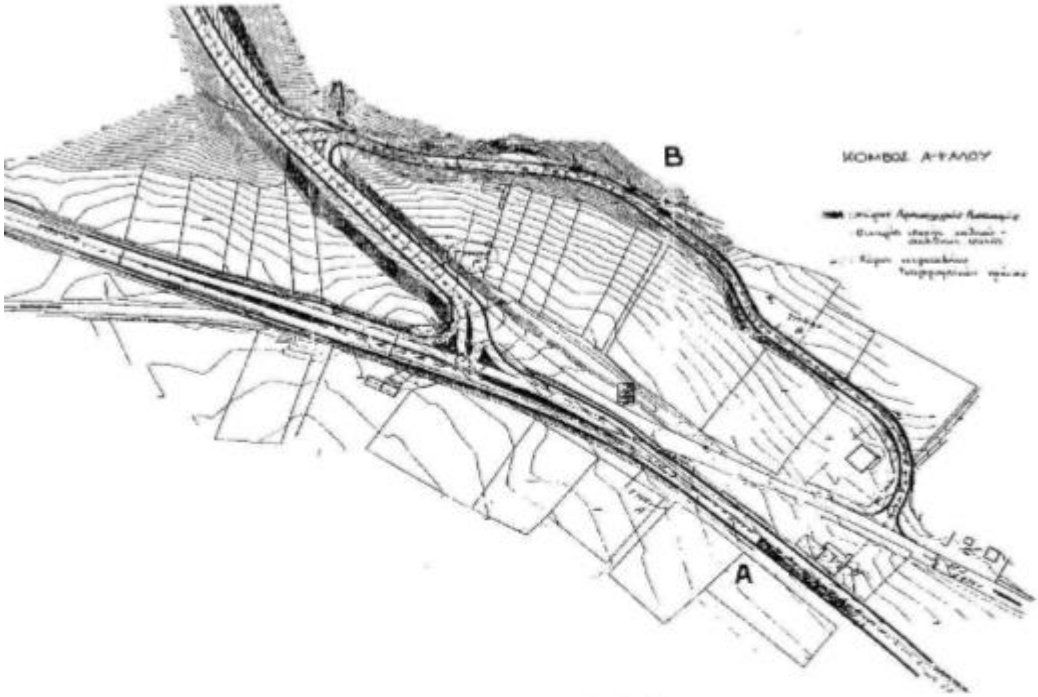

Fig. 30. Komvos Apsalos. Topographical plan of the site (Chrysostomou and Georgiadou 2001: 526)

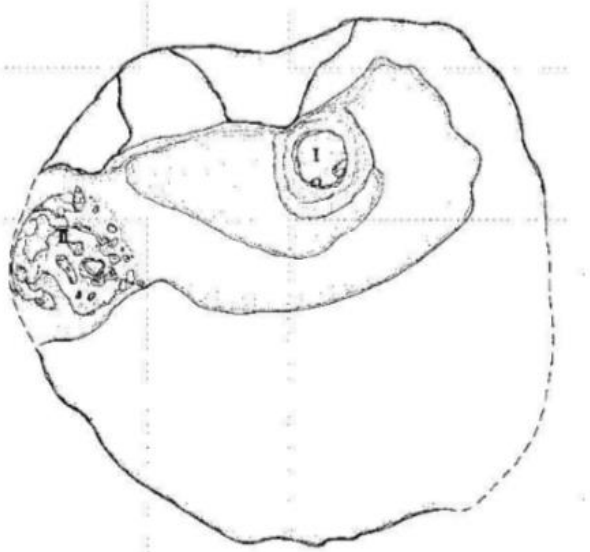

Fig. 31. Komvos Apsalos. Plan of the Neolithic trench Chrysostomou and Georgiadou 2001: 529)

Fig. 32. Sosandra Aridaia. View of the Neolithic house from the west (Georgiadou 2009: 87)

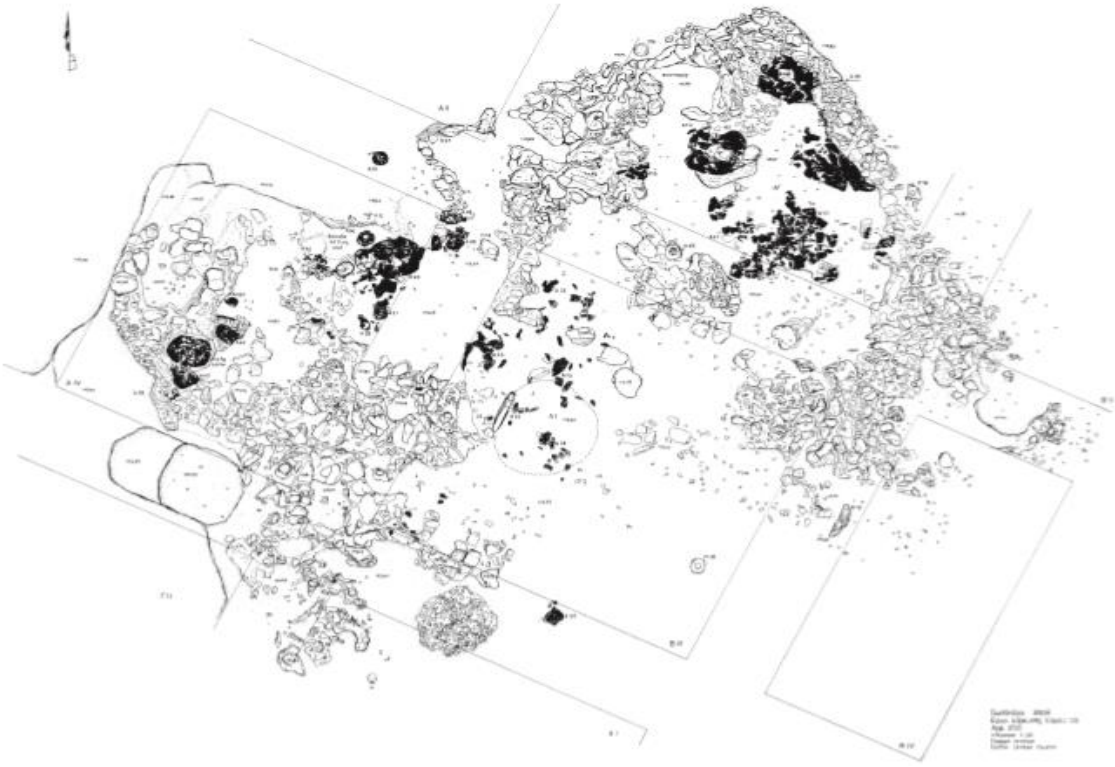

Fig. 33. Sosandra Aridaia. Plan of the Neolithic house (Georgiadou 2009: 89)

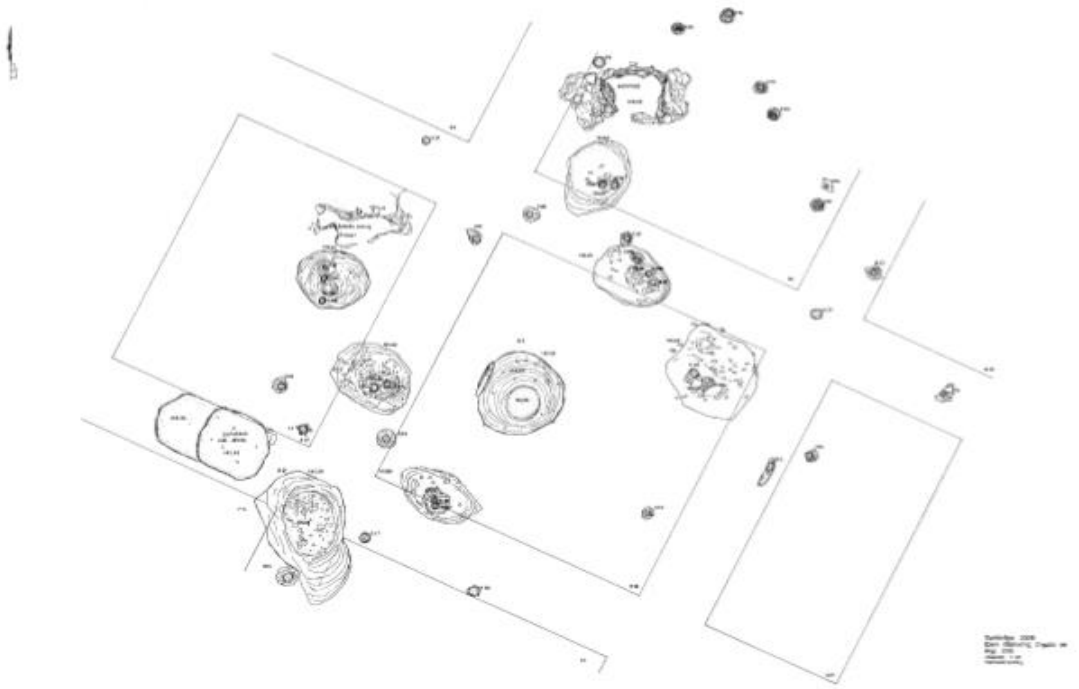

Fig. 34. Sosandra Aridaia. Plan with the post-holes of the Neolithic house (Georgiadou 2009: 92)

Fig. 35. Sosandra Aridaia. Oven and storage vessels in the eastern area (Georgiadou 2009: 92)

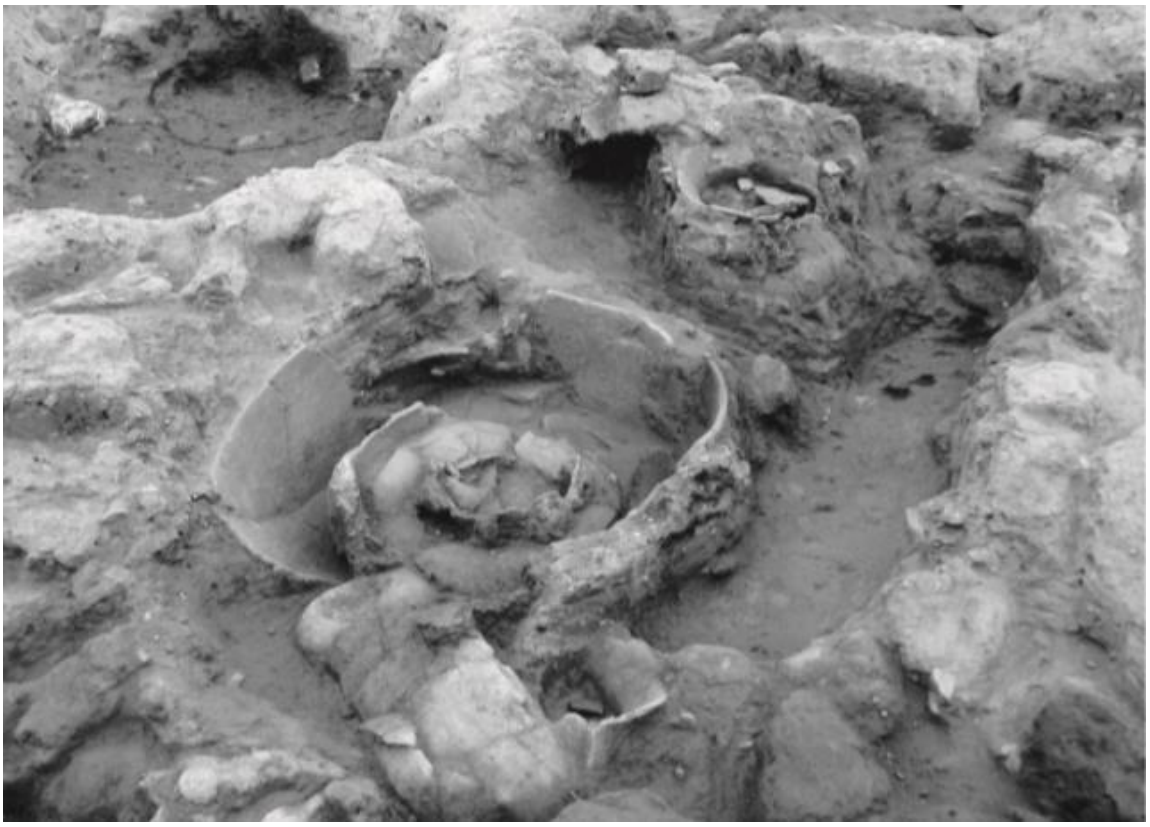

Fig. 36. Sosandra Aridaia. Vessels found in the western area (Georgiadou 2009: 94)

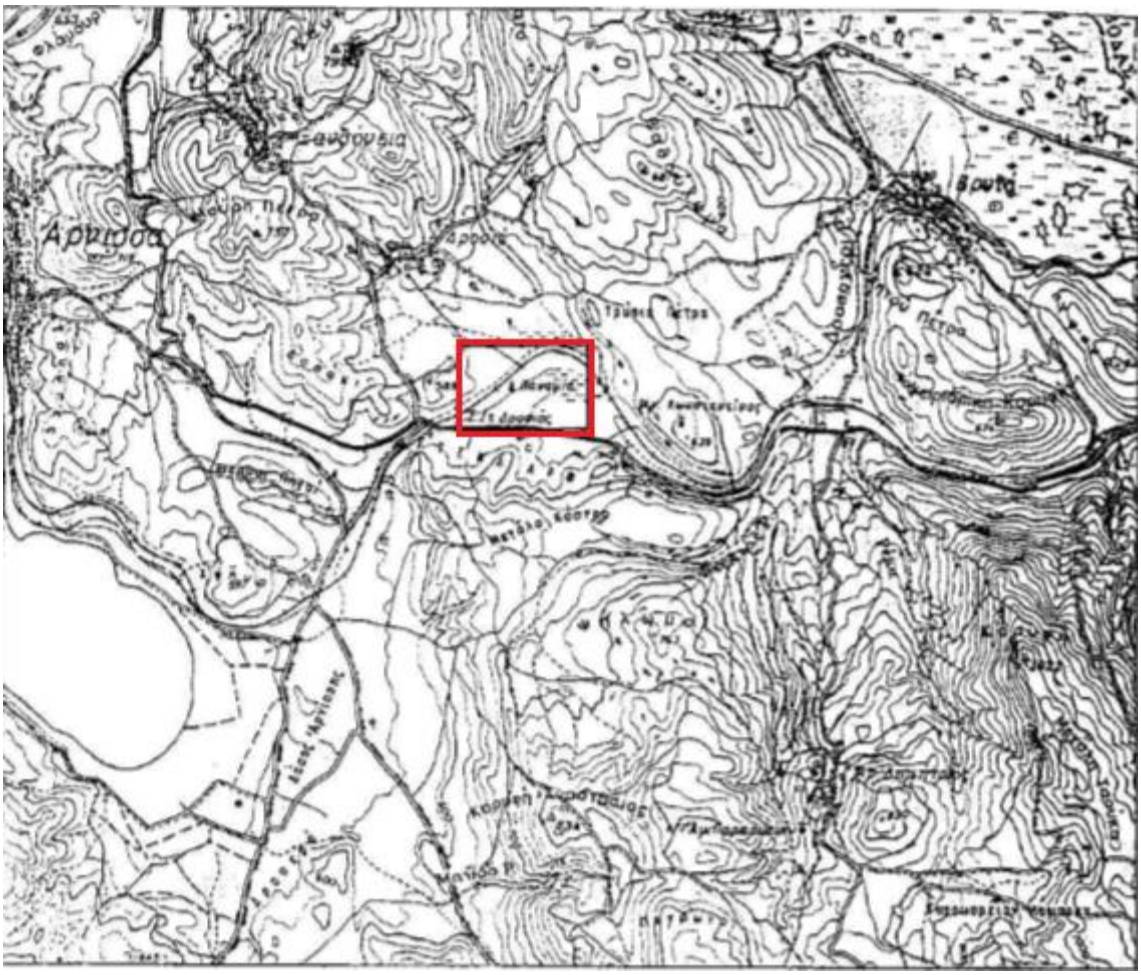

Fig. 37. Drosia. Location of the site (Kotsos 1995: 196)

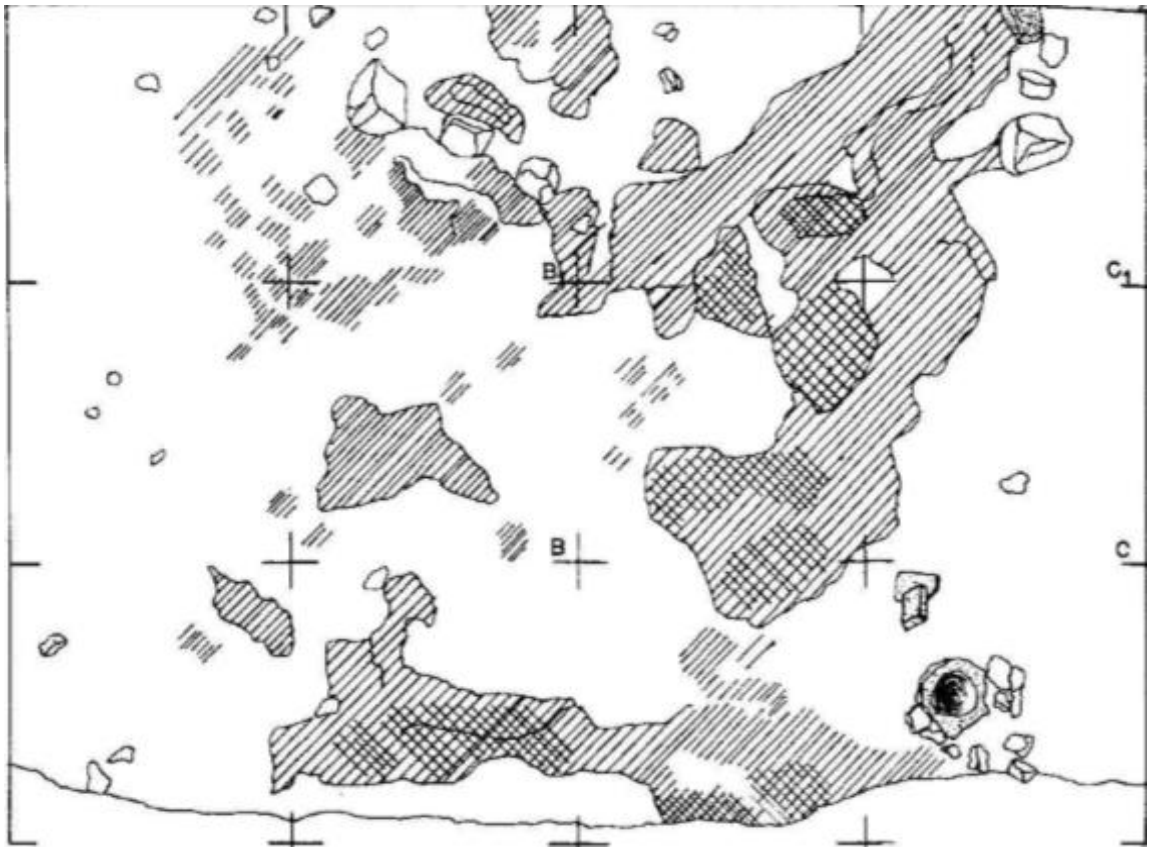

Fig. 38. Drosia. Plan of the floor of house A (Kotsos 1995: 198)

Fig. 39. Thermi B. Location of the site (Pappa 2008)

Fig. 40. Thermi B. Pit 48 (Pappa 2008)

Fig. 41. Thermi B. Pit 47 (Pappa 2008)

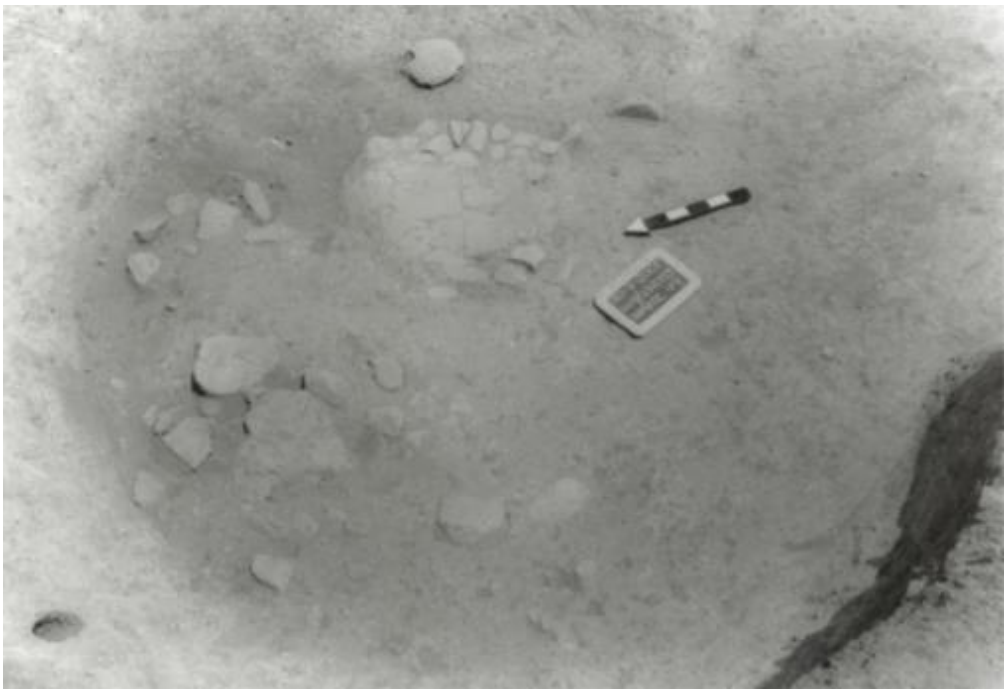

Fig. 42. Thermi B. Pit 49 and hearth (Pappa 2008)

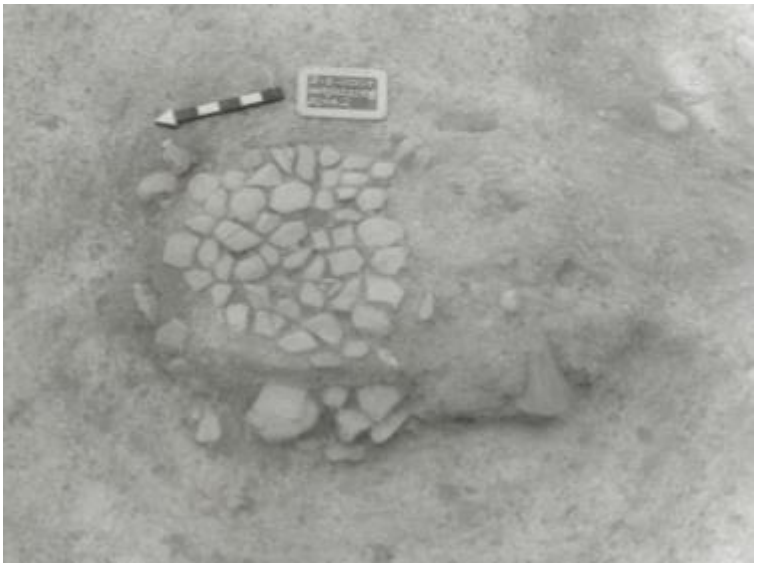

Fig. 43. Thermi B. Hearth (Pappa 2008)

Fig. 44. Thessaloniki International Fair. Location of the site (Pappa 2008)

Fig. 45. Thessaloniki International Fair. Pit 3 (Pappa 2008)

Fig. 46. Thessaloniki International Fair. Pit 7 (Pappa 2008)

Fig. 47. Thessaloniki International Fair. Pit 4 (Pappa 2008)

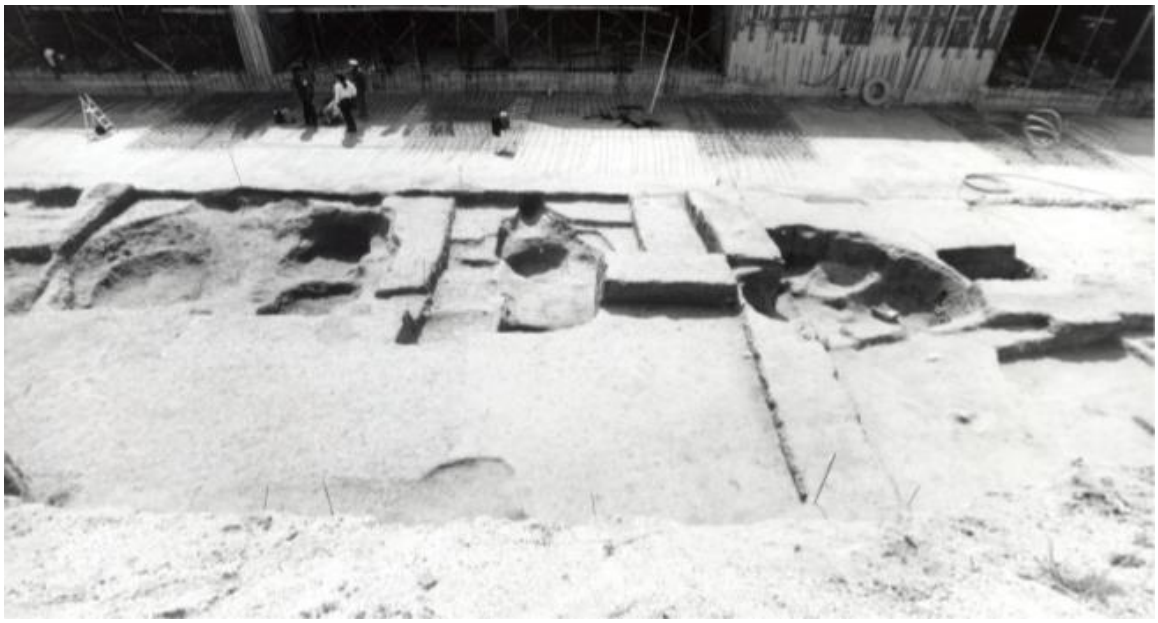

Fig. 48. Thessaloniki International Fair. Pit 4, 9 and 22 (Pappa 2008)

Fig. 49. Thessaloniki International Fair. Pit 14 (Pappa 2008)

Fig. 50. Thessaloniki International Fair. View of the south side (Pappa 2008)

Fig. 51. Vasilika C. Location of the site (Andreou et al. 2011: 436)

Fig. 52. Vasilika C. Aerial view of the site (Andreou et al. 2011: 438)

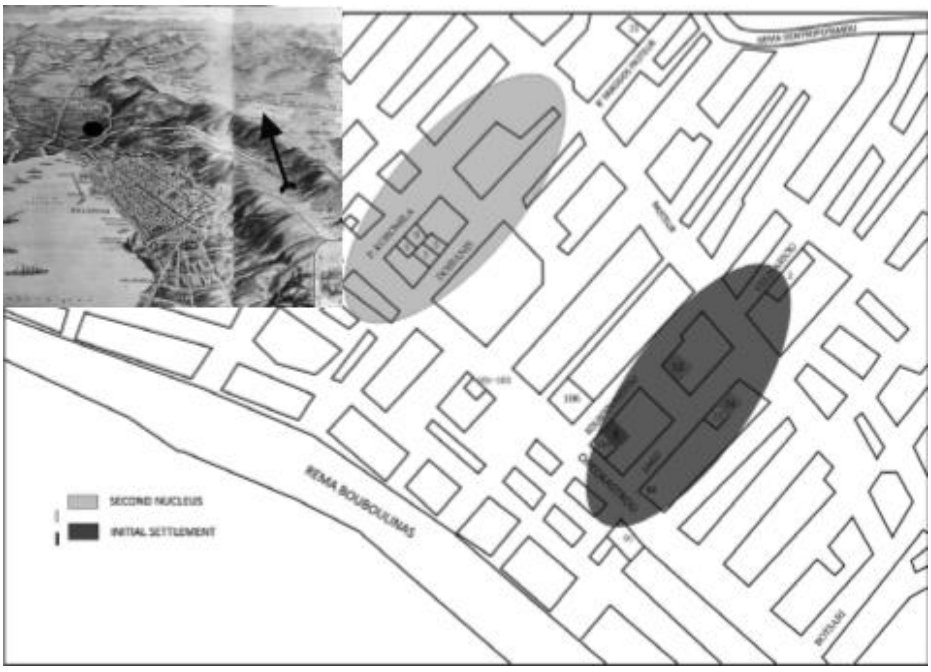

Fig. 53. Stavroupoli. Part of the urban plan with the excavated plots (Kotsos 2014: 317)

Fig. 54. Stavroupoli. Pit-house of the phase Stavroupoli Ia (Kotsos 2014: 317)

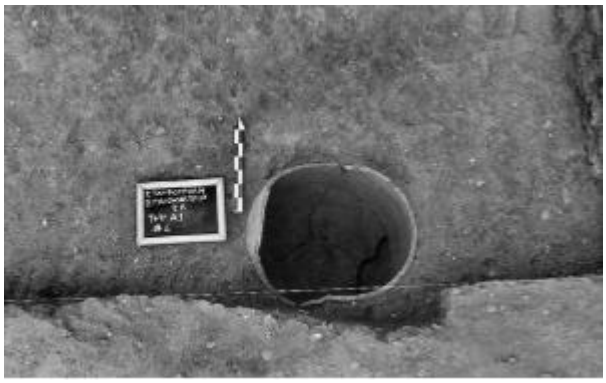

Fig. 55. Stavroupoli. Pithoid vessel from the plot 98 of Oreokastrou St. (Kotsos 2014: 321)

Fig. 56. Mesimeriani Toumba. View of the settlement and wider area from the west (Grammenos and Kotsos 2000a: 233)

Fig. 57. Mesimeriani Toumba. Aerial photograph of the settlement and wider area (Grammenos and Kotsos 2000a: 233)

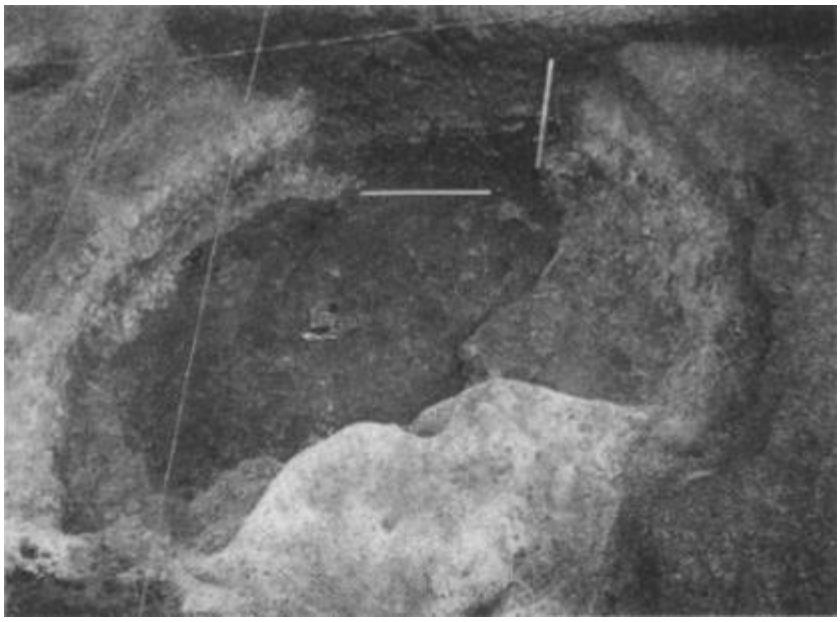

Fig. 58. Revenia Korinos. Pit 5 (Besios and Adaktylou 2004: 365)

Fig. 59. Revenia Korinos. Burials 2 and 3 (Besios and Adaktylou 2004: 365)

Fig. 60. Revenia Korinos. Post-holes from the wall foundations of a rectangular building (Besios and Adaktylou 2004: 365)

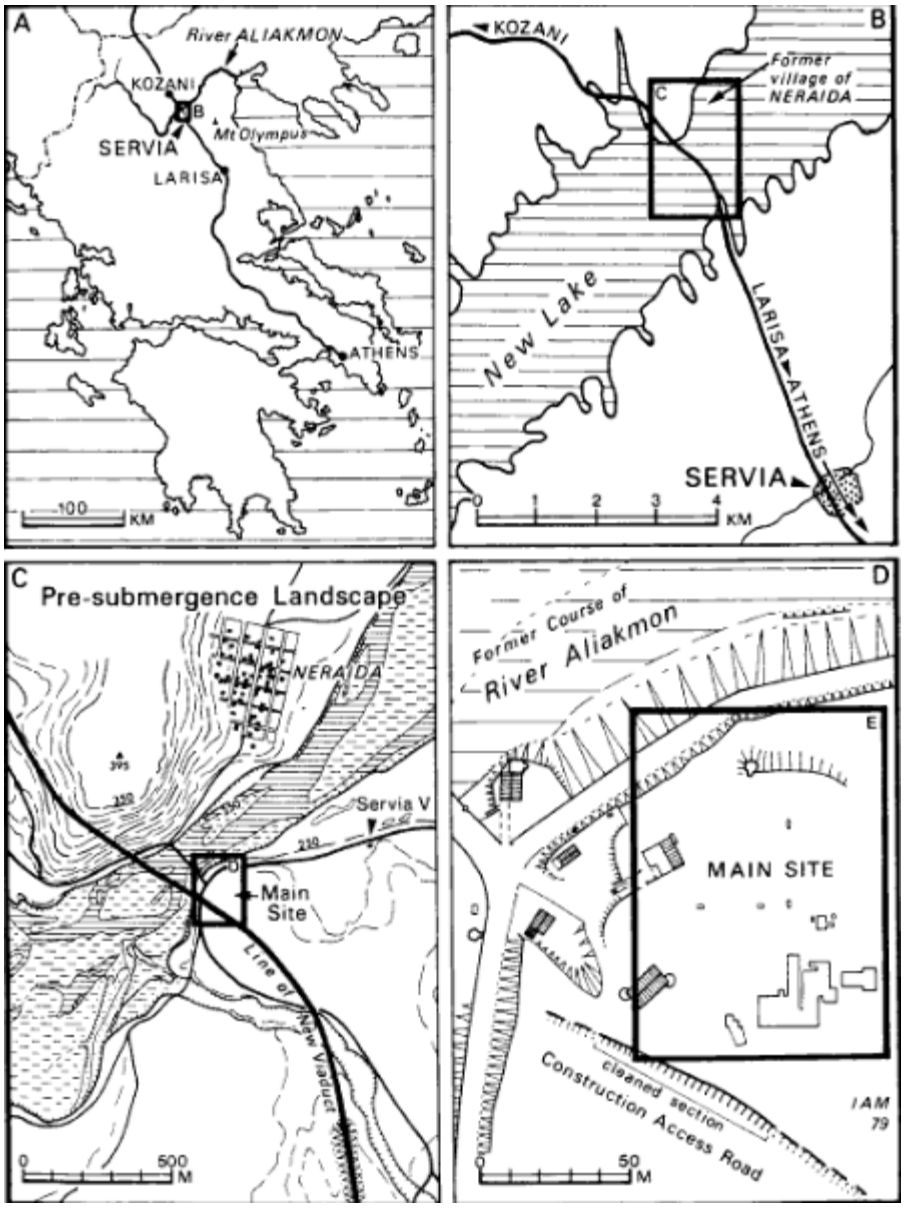

Fig. 61. Servia. Location of the main site (Ridley et al. 2000: 2)

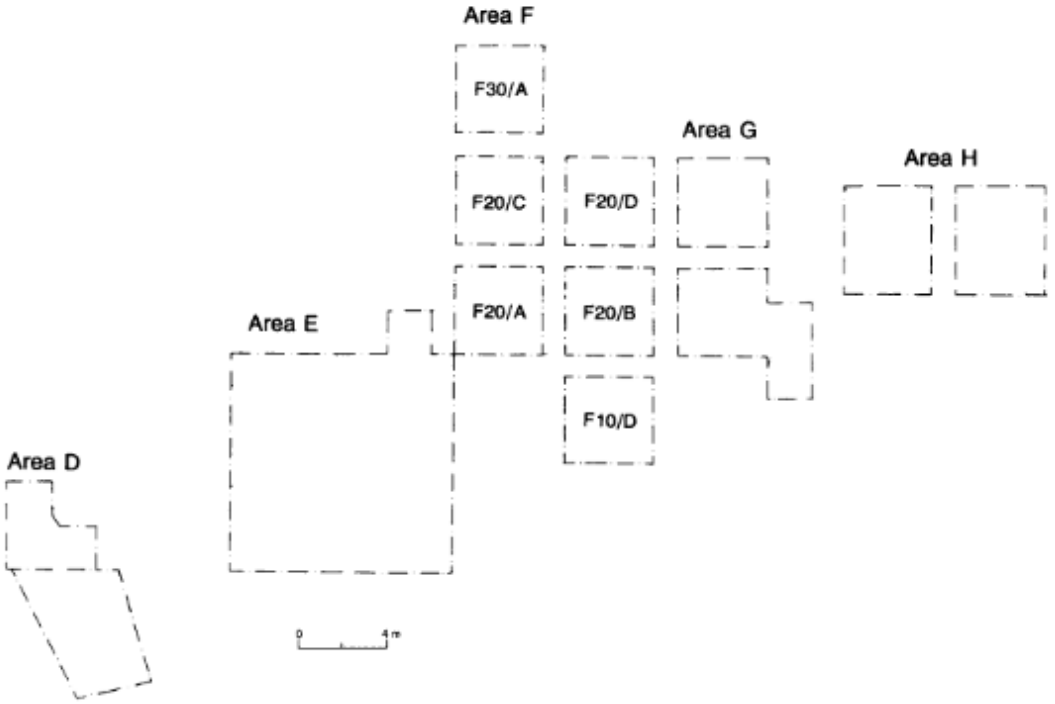

Fig. 62. Servia. The area of excavation. 1971-1973 (Ridley et al. 2000: 12)

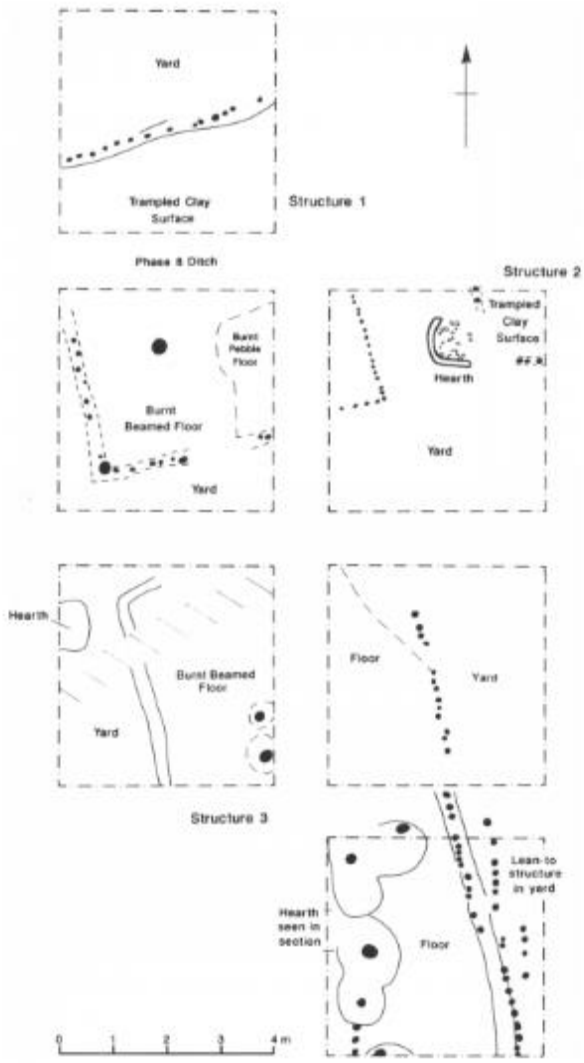

Fig. 63. Servia. Phase 1. Area F. Structures 1-3 (Ridley et al. 2000: 24)

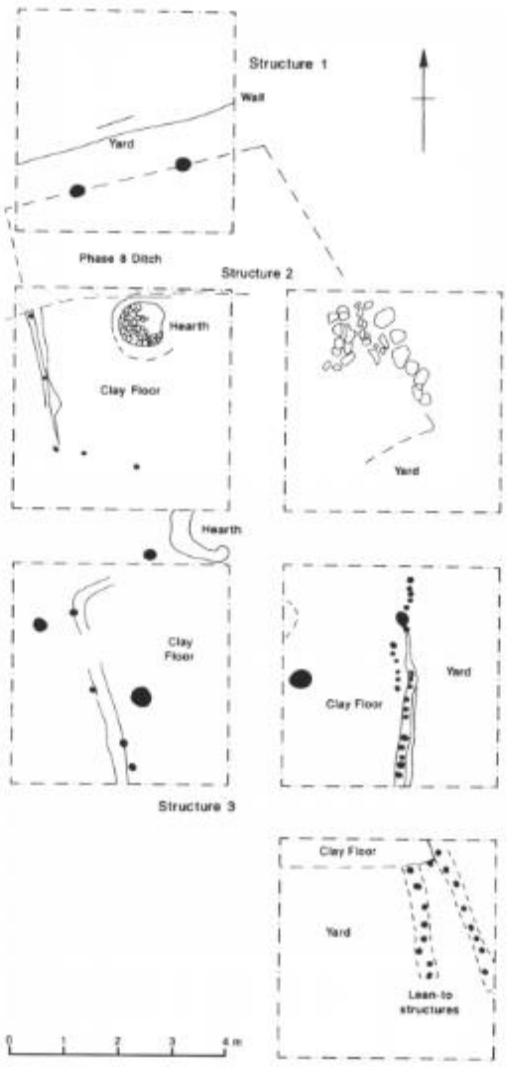

Fig. 64. Servia. Phase 2. Area F. Structures 1-3 (Ridley et al. 2000: 26)

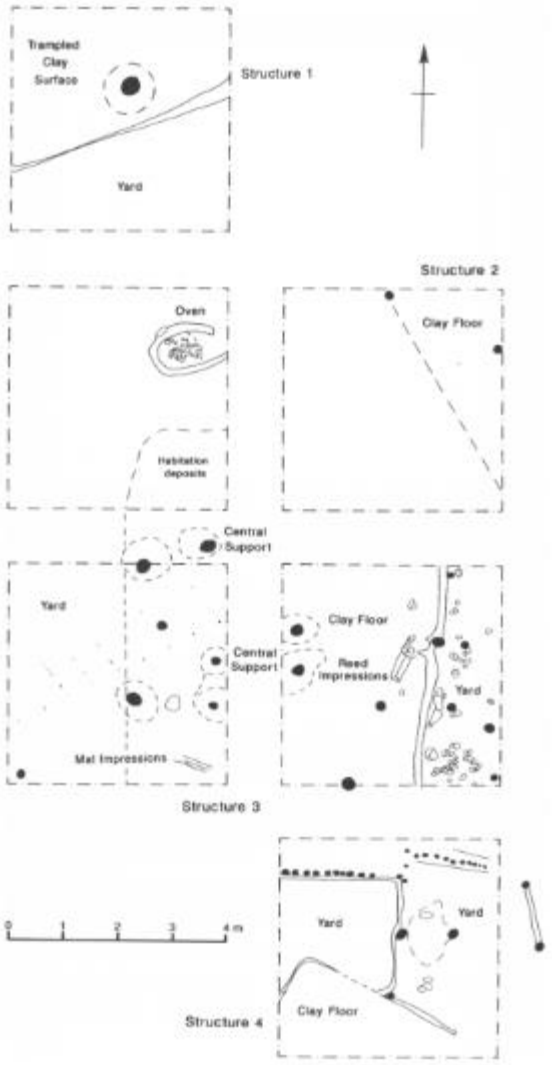

Fig. 65. Servia. Phase 3. Area F. Structures 1-4 (Ridley et al. 2000: 31)

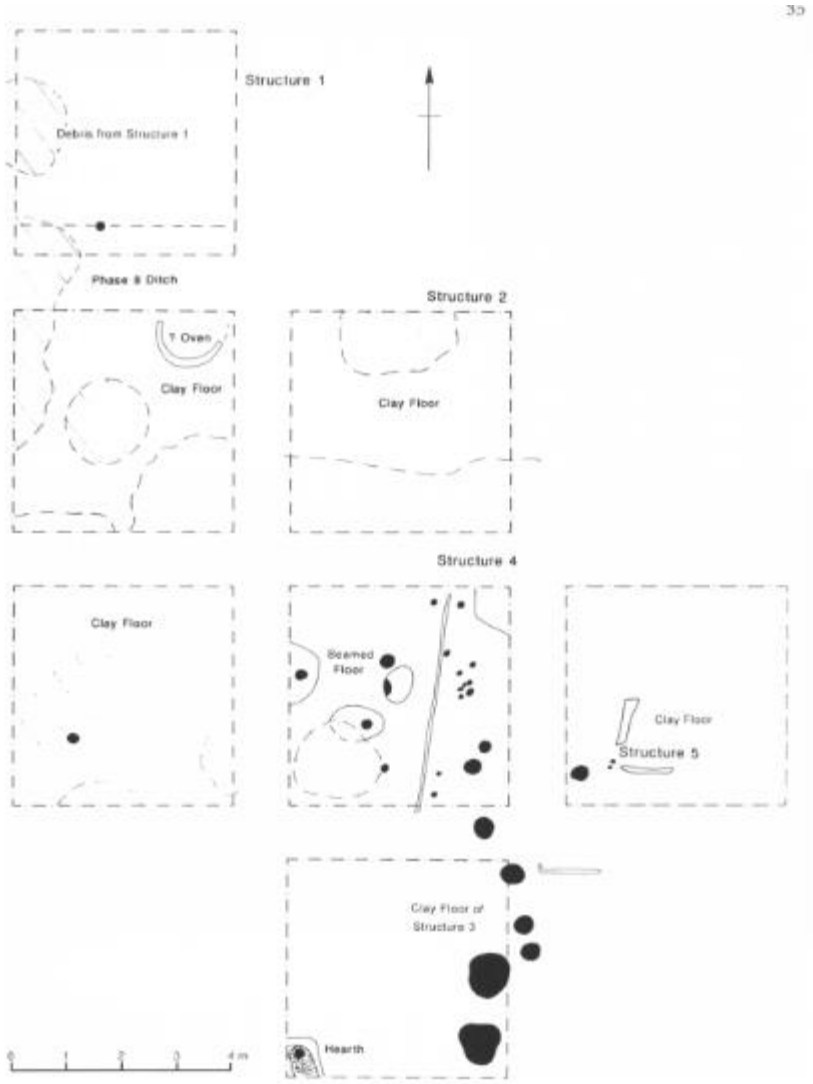

Fig. 66. Servia. Phase 4. Area F. Structures 1-4 (Ridley et al. 2000: 36)

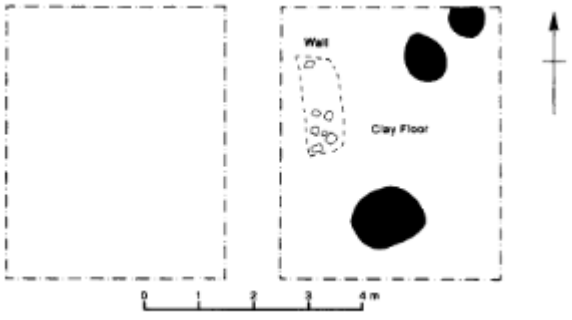

Fig. 67. Servia. Phase 4. Area H. Structure 6 (Ridley et al. 2000: 38)

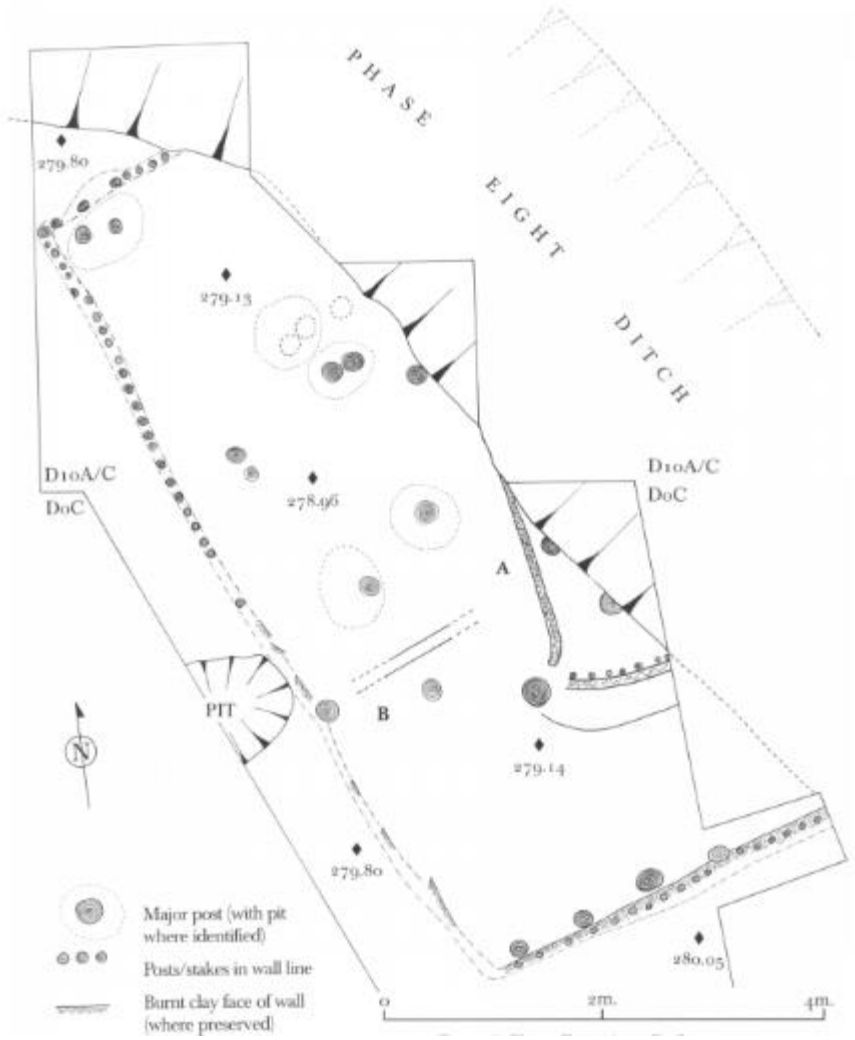

Fig. 68. Servia. Phase 4. Area D. Structure 7 (Ridley et al. 2000: 39)

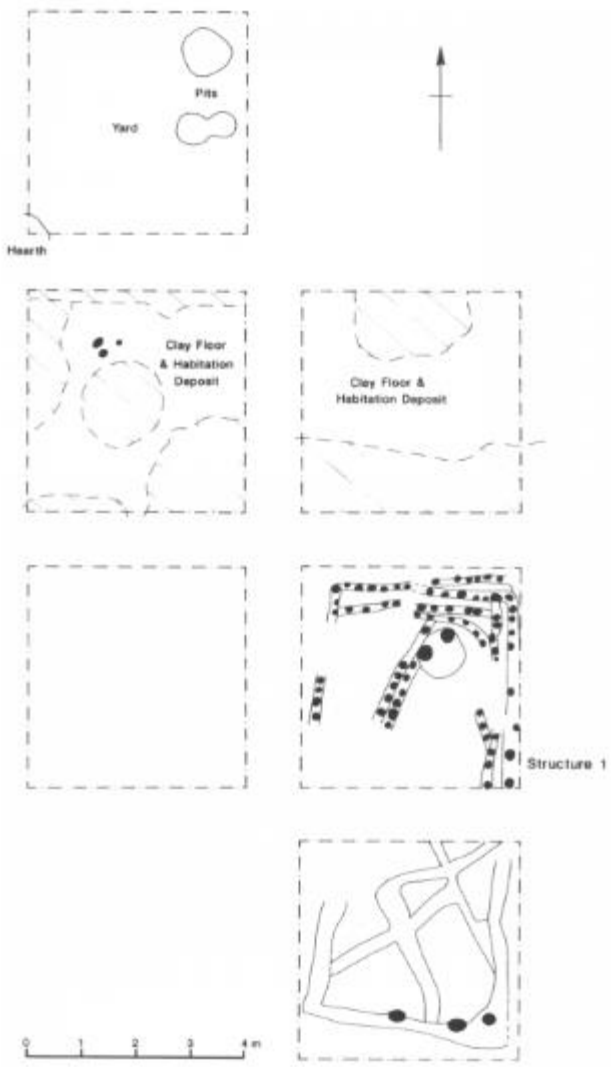

Fig. 69. Servia. Phase 5. Area F. Structure 1 (Ridley et al. 2000: 43)

Fig. 70. Kranidia Kryovrisi. Two pits on the surface of the site (Chondroyianni-Metoki 1992: 41)

Fig. 71. Roditis Paliambela. The three floors and the circular structure (Chondroyianni-Metoki 2002: 569)

Fig. 72. Goules Varemenoi. MN architectural remains in stratum B (Chondroyianni-Metoki 2002: 570)

Fig. 73. Goules Varemenoi. Cremation burial in stratum C (Chondroyianni-Metoki 2002: 570)

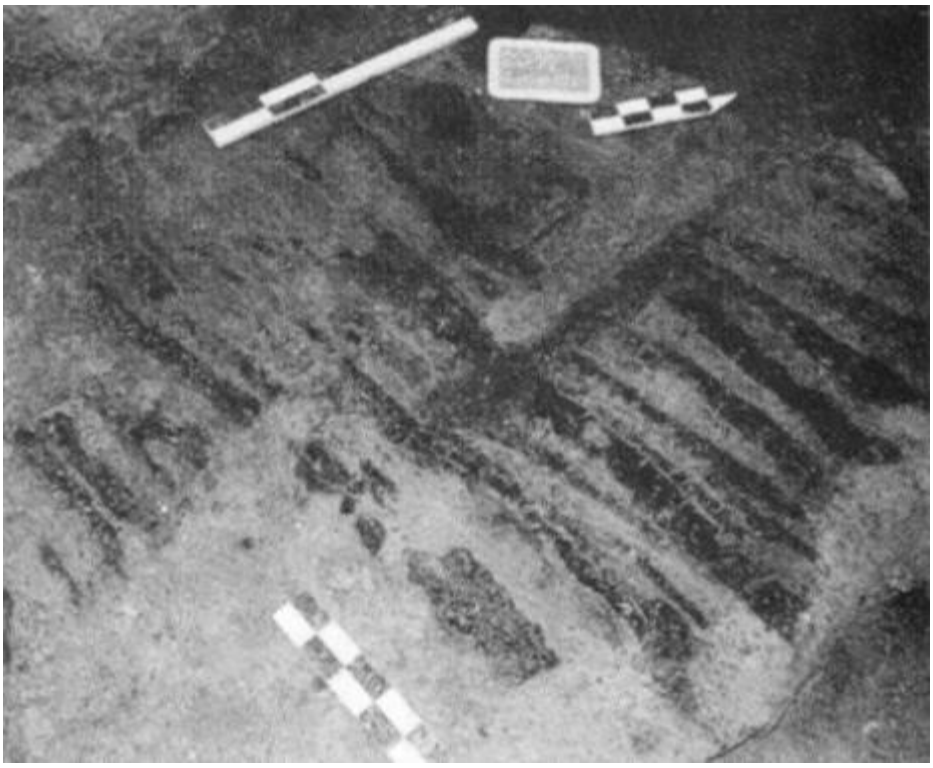

Fig. 74. Goules Varemenoi. Timber structure in stratum C (Chondroyianni-Metoki 2002: 570)

Fig. 75. Kassiani Lavas Servia. View of the settlement (Chondroyianni-Metoki 2011: 82)

Fig. 76. Kassiani Lavas Servia. View of the Neolithic stratum (Chondroyianni-Metoki 2011: 84)

Fig. 77. Kremastos Knidi. View of the site from southeast (Toufexis 1994: 26)

Fig. 78. Kremastos Knidi. Trench A (Toufexis 1994: 26)

Fig. 79. Kremastos Knidi. Trench B. Storage pit with its content on its periphery (Toufexis 1994: 26)

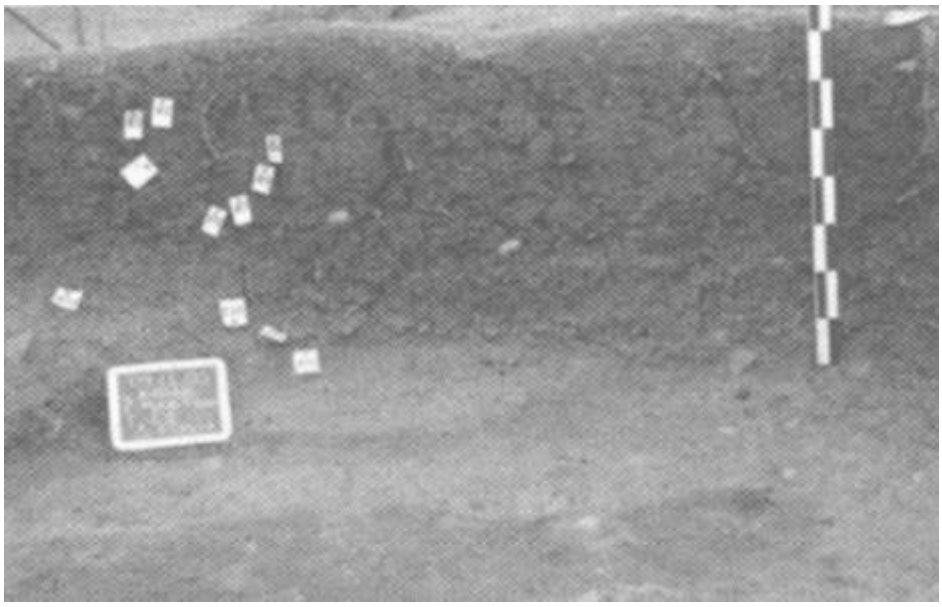

Fig. 80. Matsouka Rachi Knidi. Stratum 1 (Karamitrou-Mentessidi 2005: 560)

Fig. 81. Matsouka Rachi Knidi. Stratum 2 with chunks of clay (Karamitrou-Mentessidi 2005: 560)

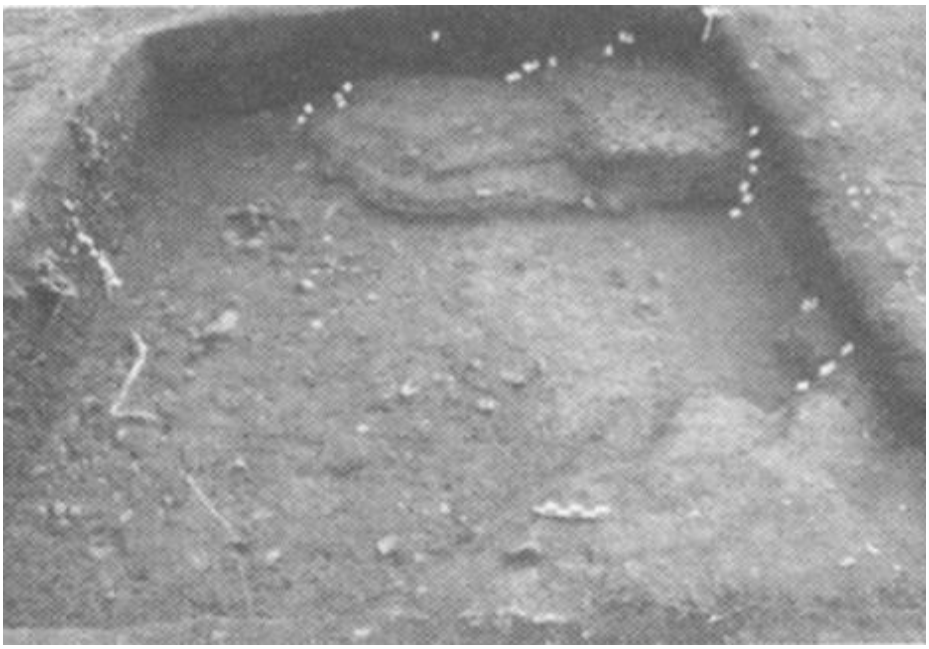

Fig. 82. Matsouka Rachi Knidi. Floors and ditch (Karamitrou-Mentessidi 2005: 560)

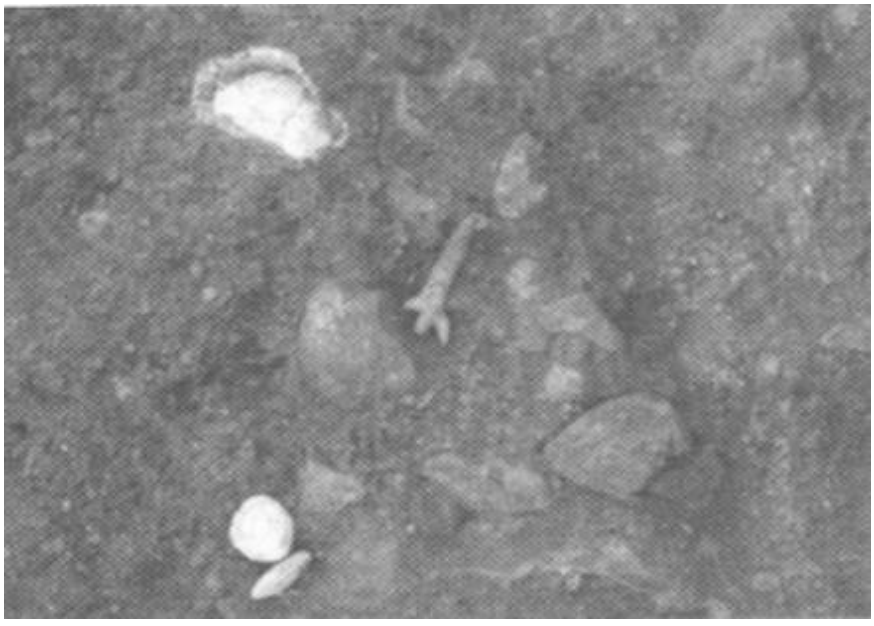

Fig. 83. Matsouka Rachi Knidi. Stratum with figurines (Karamitrou-Mentessidi 2005: 560)

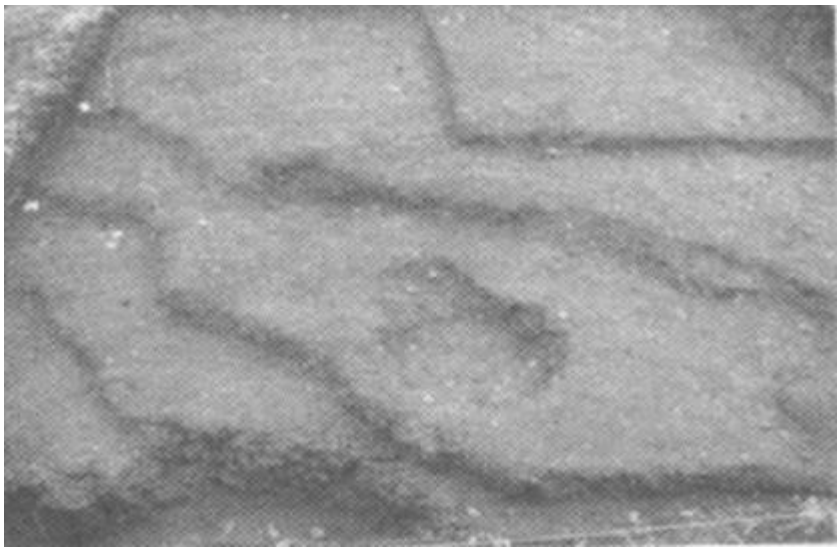

Fig. 84. Matsouka Rachi Knidi. Pit and ditch (Karamitrou-Mentessidi 2005: 560)

Fig. 85. Mavropigi-Fylotsairi. Panoramic view of the settlement after the end of the excavation (Karamitrou-Mentessidi et al. 2015: 50)

Fig. 86. Mavropigi-Fylotsairi. The architectural plan of the settlement (Karamitrou-Mentessidi et al. 2015: 51)

Fig. 87. Mavropigi-Fylotsairi. The early phase of the pit-house (Phase I) (Karamitrou-Mentessidi et al. 2015: 52)

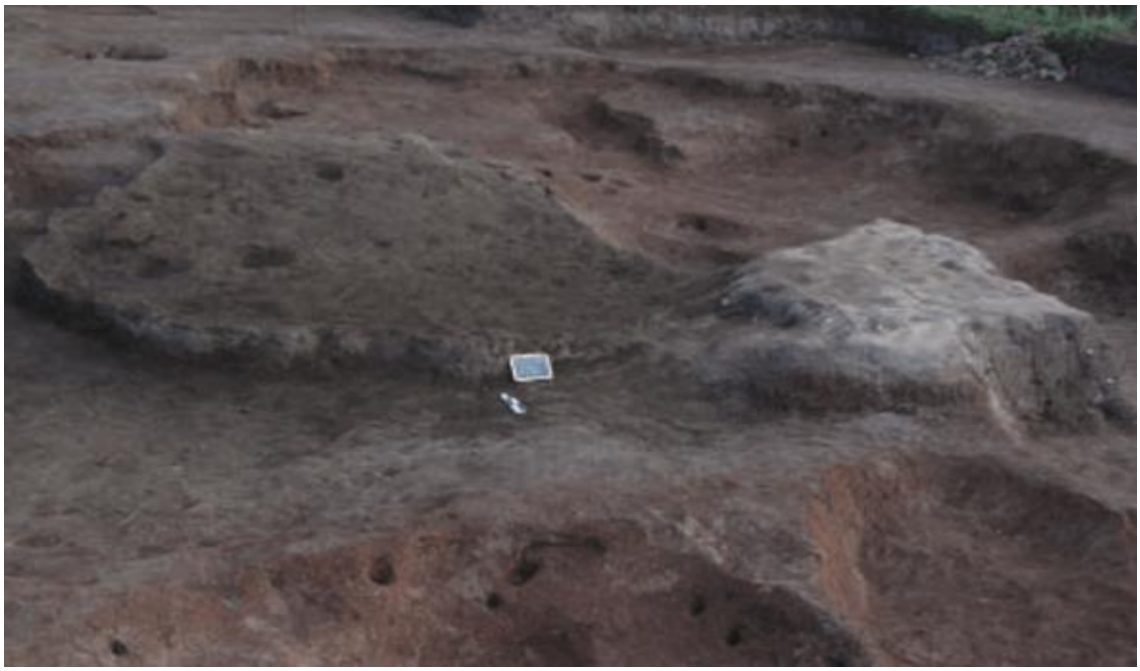

Fig. 88. Mavropigi-Fylotsairi. The second phase of the pit-house (Phase II) (Karamitrou-Mentessidi et al. 2015: 52)

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Fig. 90. Mavropigi-Fylotsairi. Successive habitation floors in the Western *Orygma* (Karamitrou-Mentessidi et al. 2015: 56)

Fig. 91. Mavropigi-Fylotsairi. View of the ellipsoidal house (Karamitrou-Mentessidi et al. 2015: 55)

Fig. 92. Mavropigi-Fylotsairi. A mortar with concavities found in the center of the ellipsoidal house (Karamitrou-Mentessidi et al. 2015: 55)

Fig. 93. Mavropigi-Fylotsairi. The seven rectangular building of Mavropigi (Phase III) (Karamitrou-Mentessidi et al. 2015: 53)

Fig. 94. Mavropigi-Fylotsairi. A typical rectangular house of the settlement (House 3) (Karamitrou-Mentessidi et al. 2015: 53)

Fig. 95. Mavropigi-Fylotsairi. The foundation channels of the houses (detail) (Karamitrou-Mentessidi et al. 2015: 53)

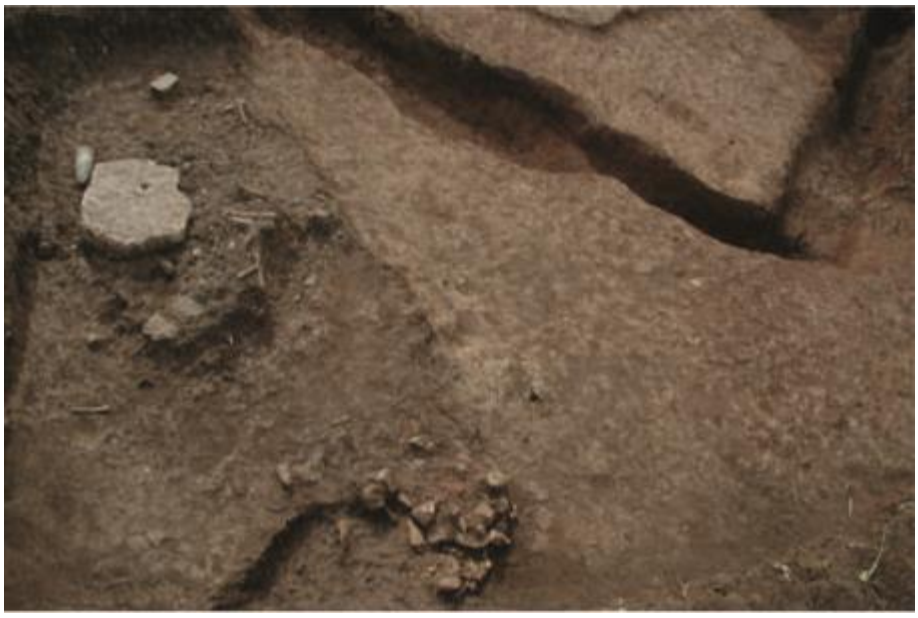

Fig. 96. Mavropigi-Fylotsairi. A typical burial with grave goods (Karamitrou-Mentessidi et al. 2015: 57)

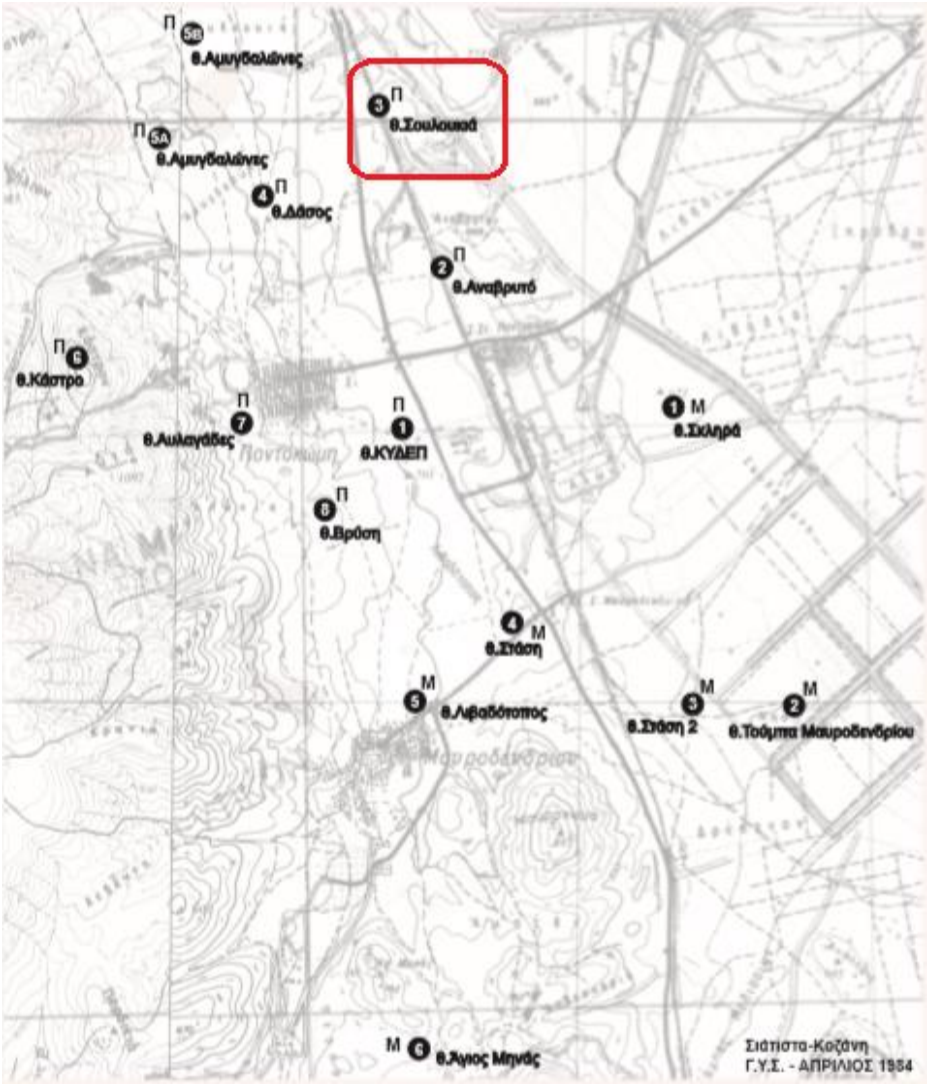

Fig. 97. Souloukia Pontokomi. Location of the site (Karamitrou-Mentessidi et al. 2010: 40)

Fig. 98. Souloukia Pontokomi. View of the site from the northwest (Karamitrou-Mentessidi et al. 2010: 41)

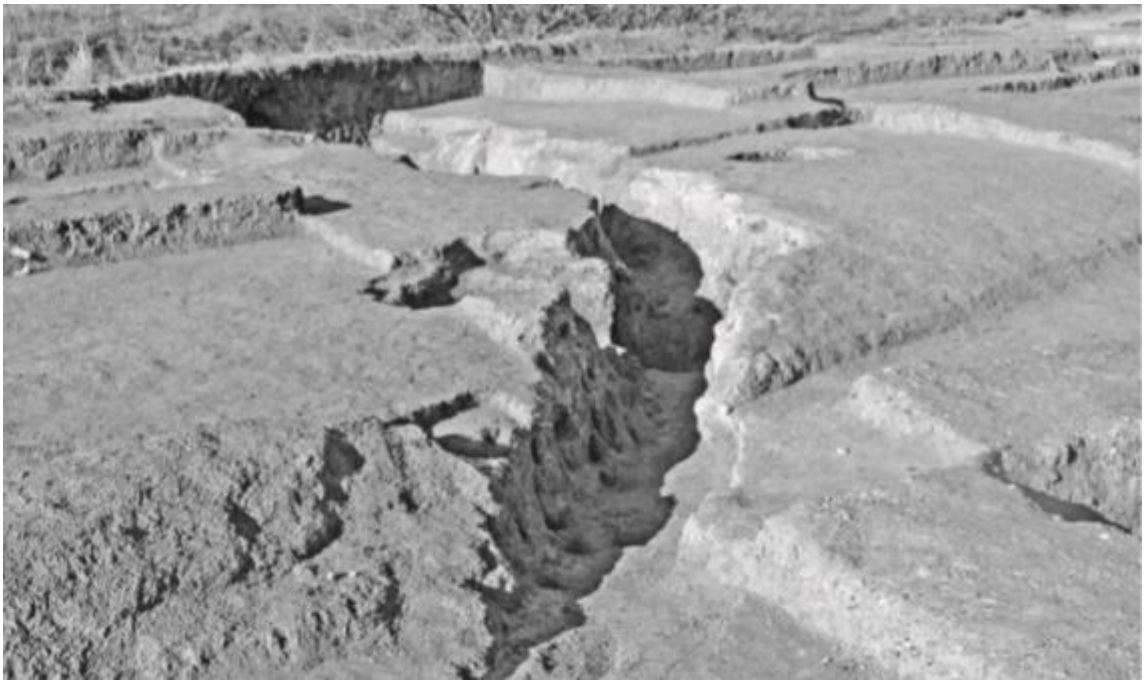

Fig. 99. Souloukia Pontokomi. View of the trench from the southeast (Karamitrou-Mentessidi et al. 2010: 41)

Fig. 100. Souloukia Pontokomi. Pits 11 and 12 in the trench of the site (Karamitrou-Mentessidi et al. 2010: 43)

Fig. 101. Souloukia Pontokomi. Two pits from the site (Karamitrou-Mentessidi et al. 2010: 43)

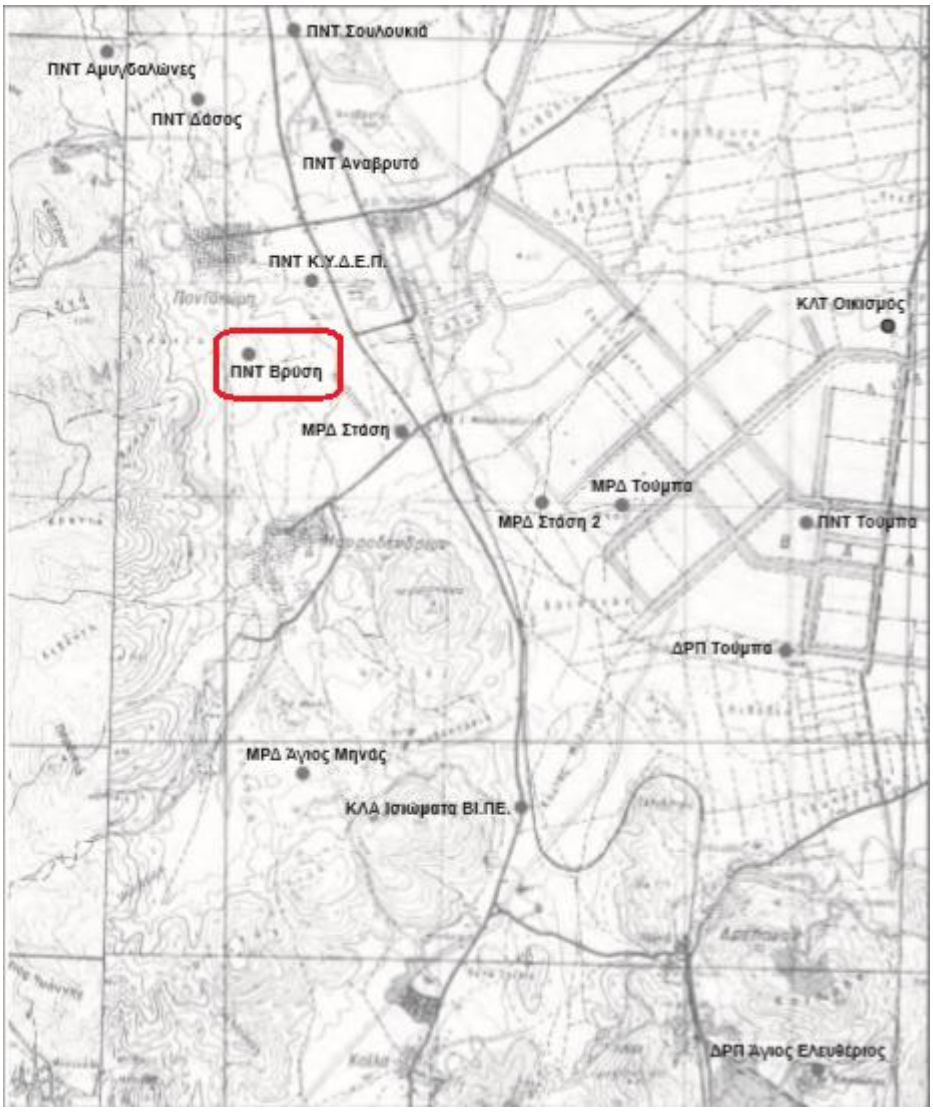

Fig. 102. Vrisi Pontokomi. Location of the site (Karamitrou-Mentessidi 2014: 239)

Fig. 103. Vrisi Pontokomi. Plan of the site (Karamitrou-Mentessidi 2000: 627)

Fig. 104. Porta/Portes Xirolimni. Location of the site (Karamitrou-Mentessidi 1998: 478)

Fig. 105. Porta/Portes Xirolimni. The destruction layer (Karamitrou-Mentessidi 1998: 478)

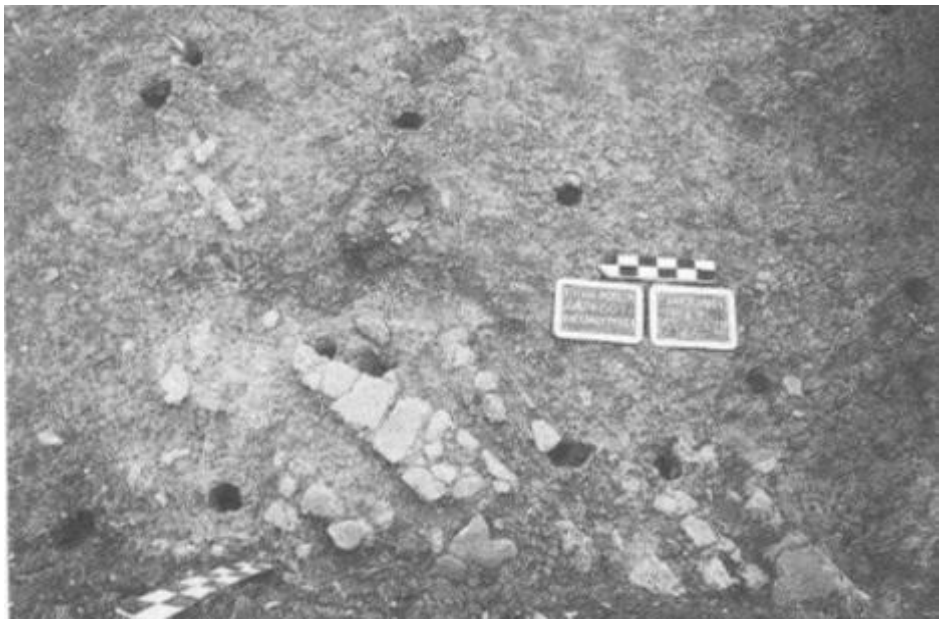

Fig. 106. Porta/Portes Xirolimni. The post-holes in the destruction layer (Karamitrou Mentessidi 1998: 478)

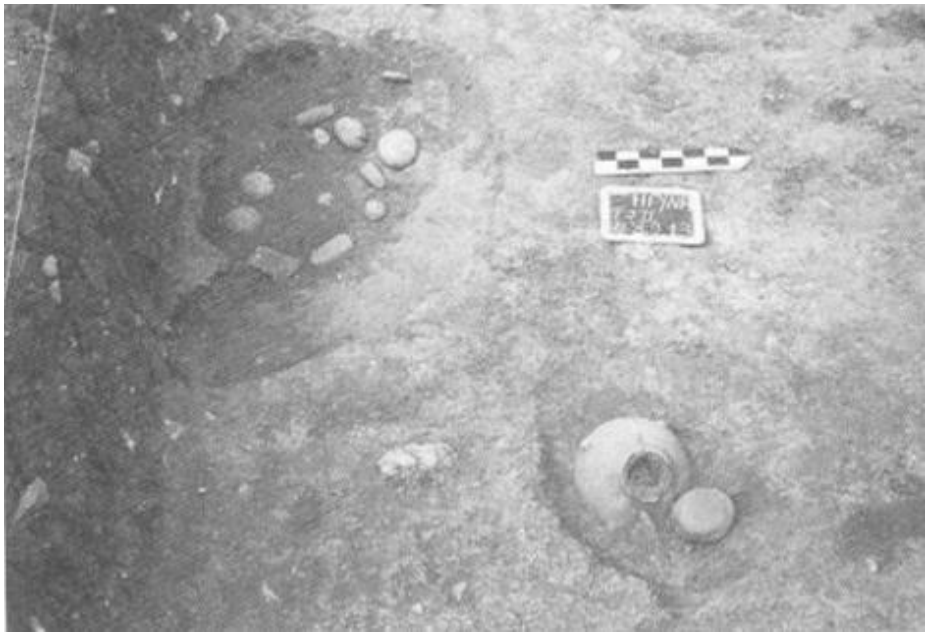

Fig. 107. Porta/Portes Xirolimni. Tools and a vessel in the destruction layer (Karamitrou-Mentessidi 1998: 478)

Fig. 108. Ambelia Ornithones Filotas. View of the site from the north (Ziota and Moschakis 1997: 54)

Fig. 109. Avgi. Location of the site to the north of the modern village (http://www.neolithicavgi.gr/)

Fig. 110. Avgi. Avgi I phase. East sector of the site

(http://www.neolithicavgi.gr/)

Fig. 111. Avgi. Avgi I phase. West sector of the site

(http://www.neolithicavgi.gr/)

Fig. 112. Avgi. Plan of the site. Buildings 2a and Building 5 (http://www.neolithicavgi.gr/)

G. Tables

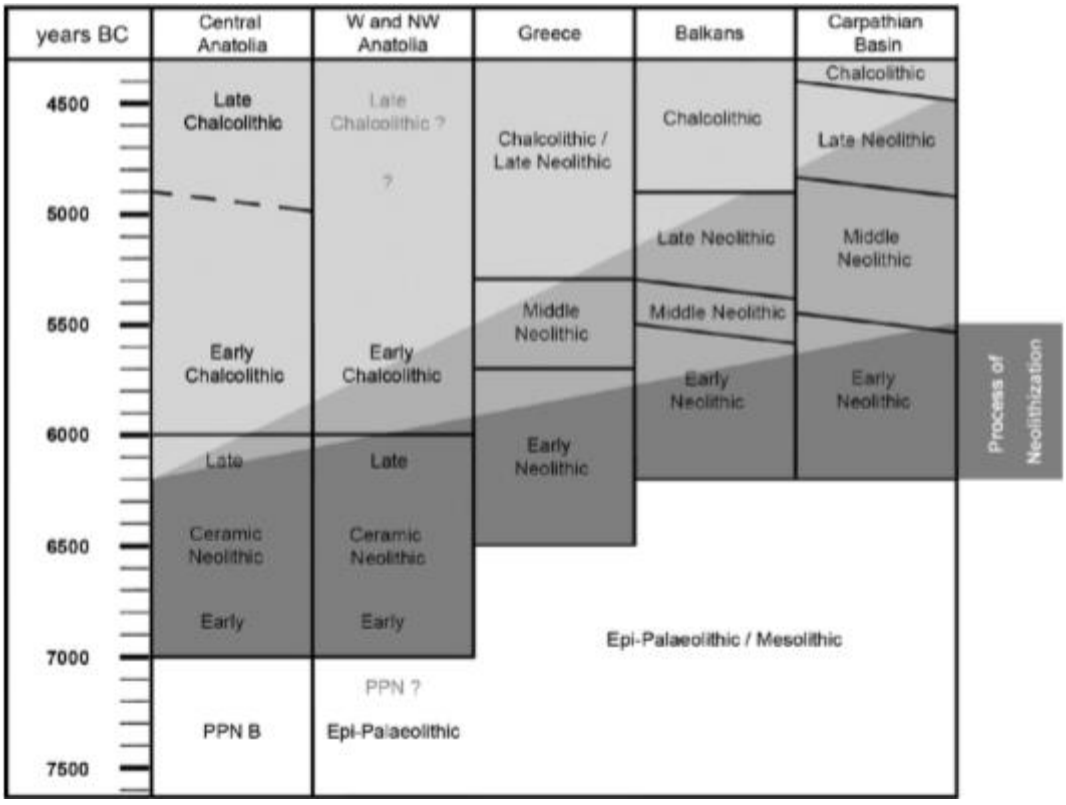

Table 1. Chronological chart of the terminology used in Anatolia, SE-Europe and the Carpathian Basin (Krauß 2011: 3).

Archaeological Phases			Years B.C. Calendrical
Early Neolithic			6700/6500–5800/5600
Middle Neolithic			5800/5600–5400/5300
Late Neolithic			5400/5300–4700/4500
Final Neolithic			4700/4500–3300/3100
Early Bronze Age			3300/3100–2300/2200
(Middle Bronze Age)	}	Later Bronze Age {	2300/2200–1700/1500
Late Bronze Age	}		1700/1500–1100

Table 2. Archaeological Phases and Chronology for Northern Greece: Neolithic and Bronze Age (Andreou et al. 1996: 538).

Sites of Central Macedonia	Chronology	Type	Size	Architecture
Lete I	EN-MN	flat-extended	-	pit-houses, ditches
Lete III	EN	flat-extended	>100 acres	pit-house, pits, ditch
Mikri Volvi	EN-MN	flat-extended	< 7,4 acres	above-ground houses, pit-houses (?), pits
Koroneia	EN-FN	flat-extended	< 2 acres	pit-houses (?), pits, ditch
Evagelismos	MN	-	-	pits
Nea Nikomedeia	EN-LN	low tell	about 24 acres	above-ground houses, pits, ditches
Giannitsa B	EN-MN-LN	low tell	about 30 acres	above-ground houses, pits, ditches
Axos A	EN	flat-extended	> 30 acres	above-ground houses, pit
Komvos Apsalos	EN	flat-extended	-	pit-house (?), pits
Sosandra	EN-LN	flat-extended	200 m	above-ground house
Apsalos Grammi	MN	flat-extended	about 50 acres	pit-houses (?), pits, ditches
Drosia	EN-MN	flat-extended	> 3,4 acres	house-floors, pit

Thermi B	MN-LN	flat-extended	> 100 acres	pits
Thessaloniki International Fair	MN	flat-extended	-	pit-house (?), pits, depressions
Vasilika C	MN-LN-FN	flat-extended	about 180 acres	No architectural elements found in the MN
Stavroupoli	MN-LN-FN	flat-extended	about 112 acres	pit-houses, pits
Mesimeriani Toumba	MN	-	-	pits
Paliambela Kolindros	EN-MN-LN-FN	flat-extended that became tell in the LN	tell of the LN around 20 acres	pit-houses, above-ground houses, pits, ditches
Revenia Korinos	EN	flat-extended	about 100 acres	above-ground houses, pit-houses (?), pits
Ag. Nikolas Ritini	EN-LN	flat-extended	-	above-ground house, pit, trenches

Table 3. The sites of the Early and Middle Neolithic in Central Macedonia

Sites of Western Macedonia	**Chronology**	**Type**	**Size**	**Architecture**
Servia V and Servia	EN and MN respectively	Servia V: - and MN Servia:	-	Servia V: pits, yards and

		low tell		Servia: above-ground houses
Kranidia Kryovrisi	EN-MN	-	-	pits
Roditis Paliambela	EN	low tell	about 30 acres	pits
Goules Varemenoi	EN-MN	tell	about 30 acres	above-ground houses, pits
Kassiani Lavas Servia	EN	seasonal settlements (?)	-	flimsy wooden structures
Kremastos Knidi	EN-LN	flat-extended (?)	about 2,5 acres	above-ground house, pit
Matsouka Rachi Knidi	EN-MN-LN	flat-extended (?)	about 1,5-2 acres	pit-houses (?), pits,
Mavropigi Fylotsairi	EN	flat-extended	about 1,24 acres	above-ground houses, pit-house, pits
Souloukia Pontokomi	EN-MN	low tell	-	pits, ditch
Vrisi Pontokomi	EN-MN	-	-	poor remains of structures
Porta/Portes Xirolimni	EN	almost flat-extended	-	post-framed hut dwellings
Ambelia Ornithones Filotas	EN-MN	-	-	poor remains of structures, pit
Avgi	EN-MN-LN	flat-extended	about 12 acres	above-ground houses

Table 4. The sites of the Early and Middle Neolithic in Western Macedonia